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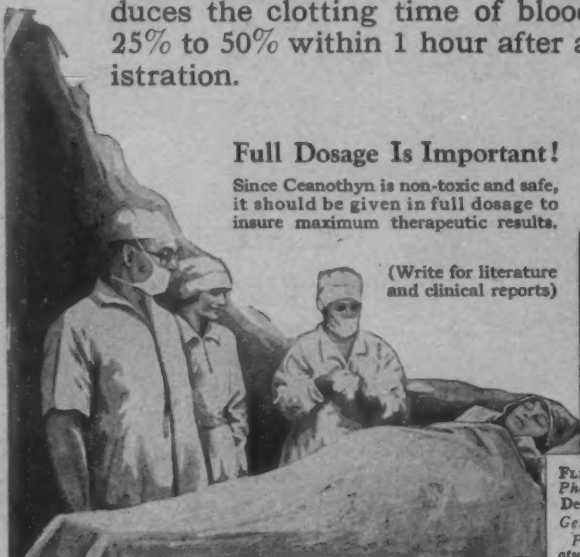
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THE LARYNGOSCOPE.

VOL. XXXVIII

AUGUST, 1928.

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ORIGINAL COMMUNICATIONS.

(Original Communications are received with the understanding
that they are contributed exclusively to THE LARYNGOSCOPE.)

UNUSUAL LESIONS OF THE NOSE AND THROAT, INCLUDING TRICHINOSIS OF THE TONSIL.*

DR. L. H. MEEKER, New York City.

The routine examination of approximately 1,500 tonsils in a year, as well as various specimens from the nose and throat, is mostly a repetition of a few well known lesions.

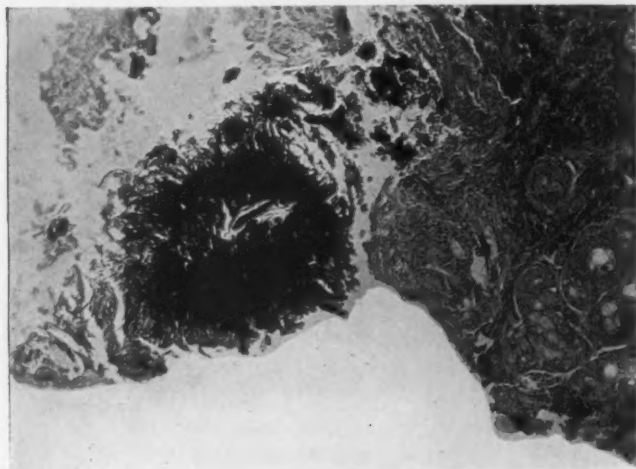


Fig. 1. F., age 45 years. Chronic granuloma of larynx. (Gram stain). Leptothrix colony black, more than an inch in diameter in the illustration, at left center.

The commonest types of tonsil pathology are hypertrophy and chronic inflammation. Fully 95 per cent fall into these groups. Less

*Read before the New York Academy of Medicine, Feb. 23, 1928.
From the Department of the Laboratories, New York Post-Graduate Medical School and Hospital.

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Fig. 2. F., age 19 years. Parakeratosis ("mycosis") of the tonsil. The opening of a crypt is shown with cornified epithellum with the fungus stained black.

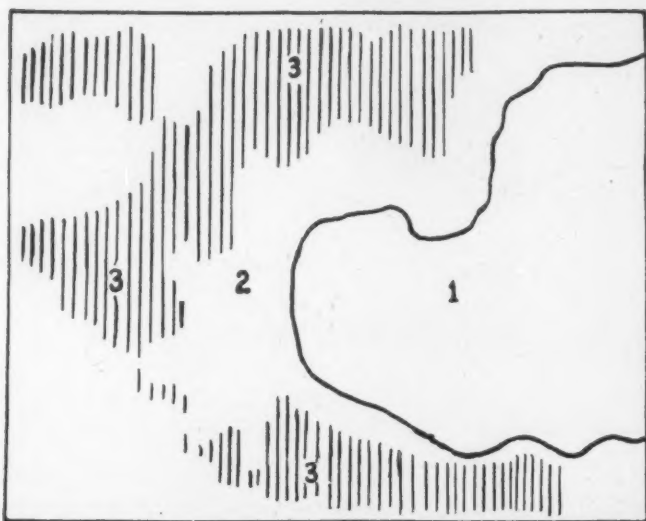


Fig. 2a. Diagram: 1—Adenoid tissue. 2—Keratosis. 3—Fungus.



common are the specific inflammations, as tuberculosis and inflammation due to Vincent's organisms, and occasionally acute tonsillitis.

Variations of these usual forms occur chiefly as accidental sequelae. Thus we have secondary invaders, as streptothrix, which requires a primary lesion of the epithelium to gain a foothold. In this manner

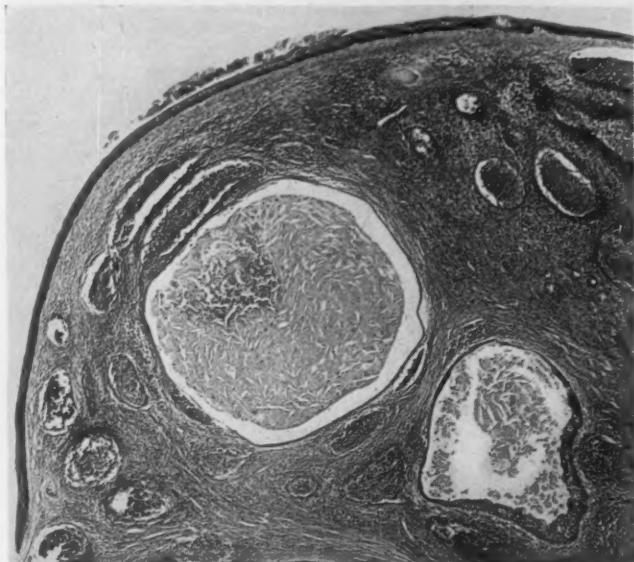


Fig. 3. F., age 3 years. Cholesteatoma. Cysts filled with cornified epithelium and cholesterol crystals.

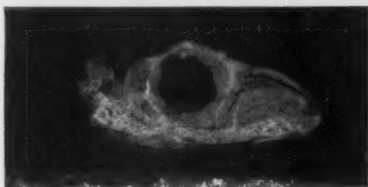


Fig. 4. M., age 28 years. Tonsillolith of cholesterol crystals embedded in tonsil. Tonsillolith is black.

a persistent granuloma of the larynx was found to be due to a fungus, streptothrix (Fig. 1).

In a similar way the so-called mycosis pharyngis becomes anchored in the tonsillar crypts (Fig. 2). This fungus is of historical interest. It was the first organism noted in the tonsil and was described by

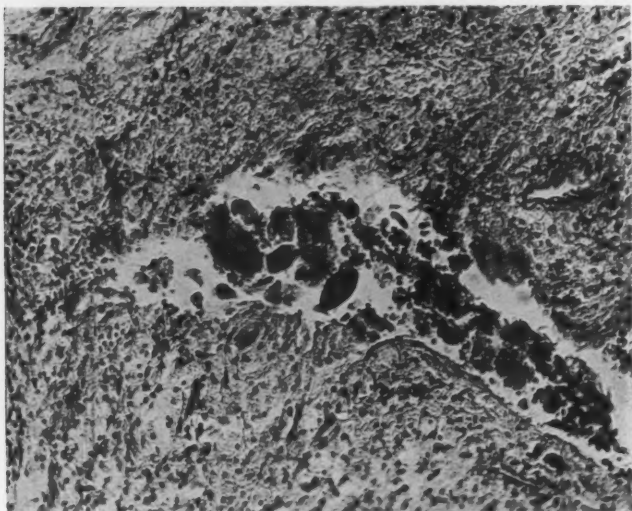


Fig. 5. Psammoma bodies or "sand" in wall of xanthoma, shown in Fig. 6. The psammoma bodies fill the cleft at centre, extending downward to right.

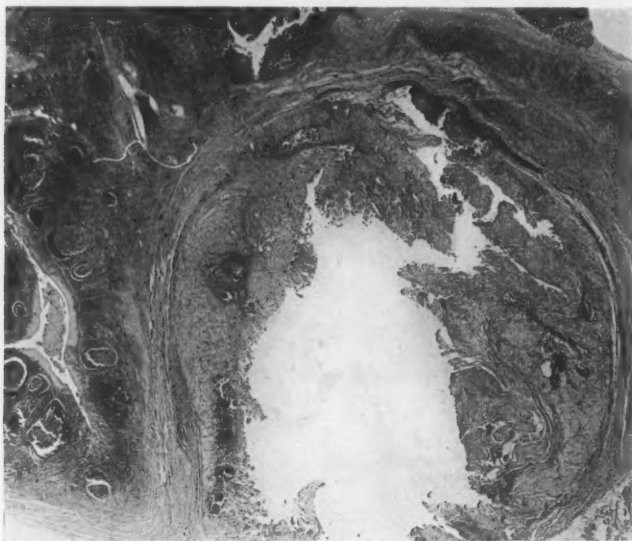


Fig. 6. M., age 44 years. Xanthoma, round area with fibrous wall, 8 m.m. in diameter.



Frankel in 1873. Later the associated keratosis was considered merely a very good medium for the growth of the ever present fungus.

So, too, the changes in the crypts may vary according to the antecedent injury. Small lesions heal without trace and lesions of short duration recover completely. Repeated lesions and extensive injury lead often to scarring, adhesions of the crypt walls, invasion of the peritonsillar tissues, thrombosis of the deep vessels and involvement of neighboring mucous glands.

Among such changes are cysts filled with necrotic epithelium and cholesterol crystals, cholesteatoma (Fig. 3), or actual stone forma-



Fig. 7. M., age 41 years. Multiple pigmented nevi of tonsil. Melanin is black just beneath the epithelium.

tion, tonsilloliths (Fig. 4). More rarely the cysts and wall are filled with numerous fine stones or sand formed of calcium salts, like the psammoma bodies of tumors (Fig. 5). Rarely, too, the cyst walls undergo a peculiar fatty change to a considerable depth, largely replacing the lymphoid tissue with a deep yellow, fatty material, xanthoma (Fig. 6).

Among the unusual findings we have one example of multiple small pigmented nevi of the tonsil. These were recognized in the gross as small black spots scattered under the epithelium of the tonsillar sur-

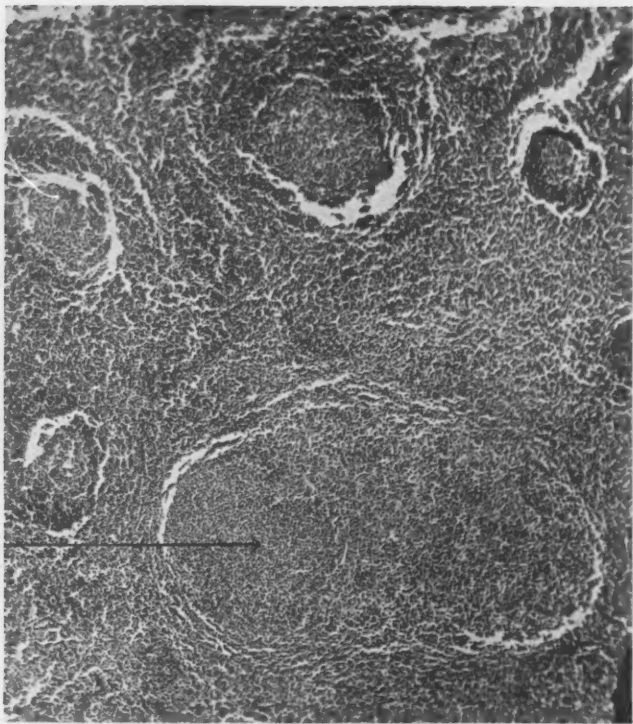


Fig. 8. M., age 21 years. Follicle abscess in marked lymph follicle.



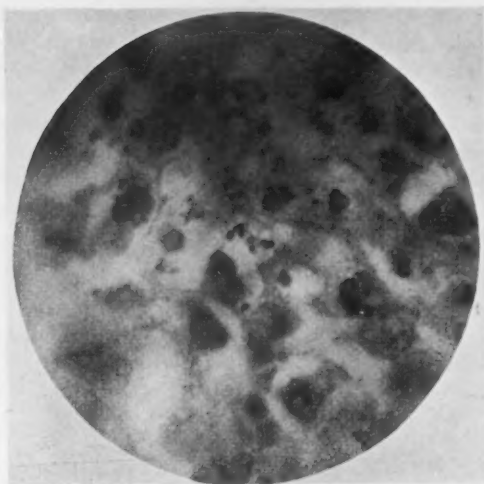


Fig. 8b. Streptococci in follicle abscess shown in Fig. 8 (Gram stain).

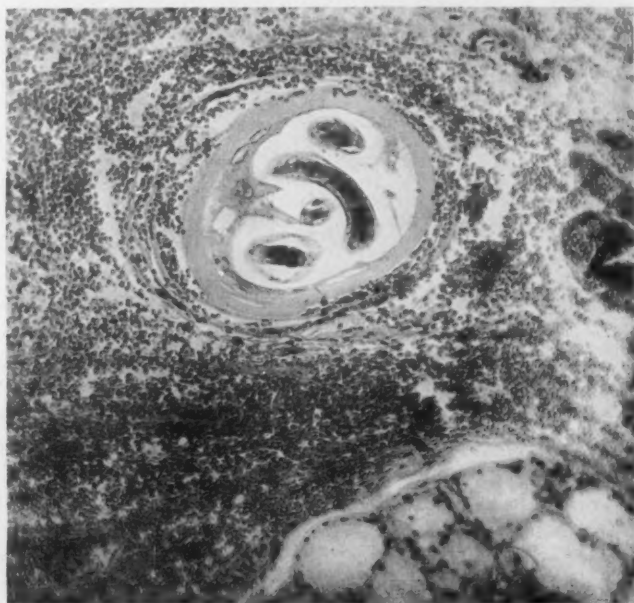


Fig. 9. F., age 19 years. Encysted trichina at base of tonsil.



face and crypts (Fig. 7). The pigment was proved to be melanin by special staining. Pigment deposits from extravasated blood are described in Henke and Lubarsch, but we find no previous mention of melanin.

Abscesses of the tonsil parenchyma related to surface ulcerations or in the peritonsillar tissue are fairly frequent occurrences. Isolated miliary abscesses of the tonsil, "follicle abscesses", are rare and, according to Henke and Lubarsch, may be considered hematogenous in origin (Fig. 8).



Fig. 10. M., age 25 years. Nasal polyp filled with necrotic tissue and abundant cholesterol crystals. Fibrous wall at right and below.

One parasite, a round worm, coiled in a cyst of the tonsil, was reported by Middleton. Our case of a trichina encysted at the base of the tonsil seems to be the first found in this locality (Fig. 9). The patient was a young woman, age 19 years, and this unique finding revealed the cause of malaise and fever a year earlier.

Cysts occur in many localities in the nasopharynx. They are present in nasal polyps, usually in the form of dilated gland ducts. Less common are those formed by degeneration of large areas in the tis-

sues with the formation of abundant cholesterol crystals. Large polyps may be completely hollowed out and filled by crystals in this manner (Fig. 10).

Cholesterol crystals and other deposits, as calcium salts, often act as foreign bodies and as such give rise to foreign body granuloma. Examples of this may be found in any locality and the cause may be



Fig. 11. Cyst at base of tonsil with cholesterol crystals (enclosed in giant cells) acting as foreign bodies in the wall.

previously unsuspected. Instances of these foreign body reactions in tonsils (Fig. 11), nasal polyps, including the sinuses (Fig. 12), and in the larynx (Fig. 13) are not very common.

Malformations, due to defective embryonal development, form an interesting group of pathological conditions. These malformations may be classed in two main groups, one due to arrested development, producing later many of the cysts encountered, and the other due to

displacements of tissue, yielding later tumors; or we may have a combination of both defects.

Among the cysts are those of the nasal septum. Hallinger reported a cyst in the ethmoid plate, considered by him a displaced ethmoid cell, and we have encountered two in the cartilaginous septum (Fig. 14). We also attribute these cysts to ethmoid cell extensions.

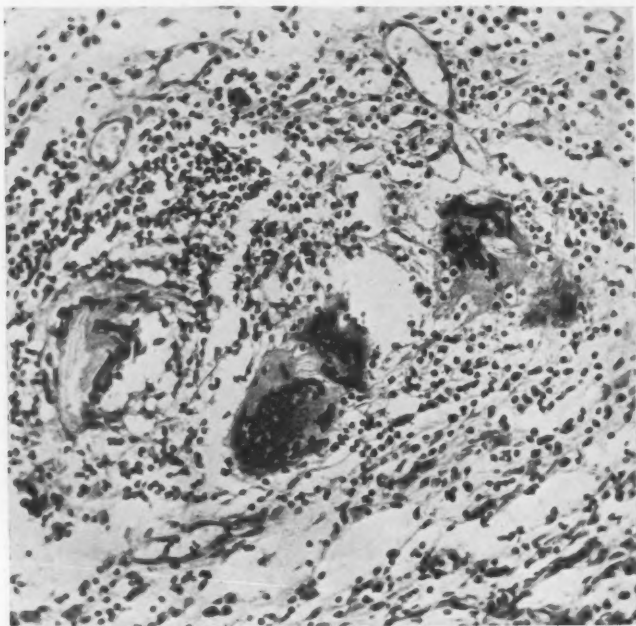


Fig. 12 F., age 26 years. Giant cells about unidentified foreign body particles in a granuloma of the maxillary antrum.

The turbinate bodies yield occasional cysts, varying greatly in size from a few millimeters to our largest example with a cavity 40x25x15 m.m. The cysts are lined by ciliated epithelium.

Then, there are the fairly frequent cysts from the persistent branchial clefts. Such a cyst, which we consider quite unusual, is one opening just below the ear and having a wall formed of displaced thymus tissue, including Hassall's corpuscles (Fig. 15).

Misplaced tissue accounts also for the mixed tumor of a salivary gland removed from the soft palate. A further example, previously reported, illustrates another embryonal anomaly. The right tonsil was entirely replaced by coiled and looped nerve trunks, a plexiform neuroma (Fig. 16), a lesion not previously encountered in the tonsil.

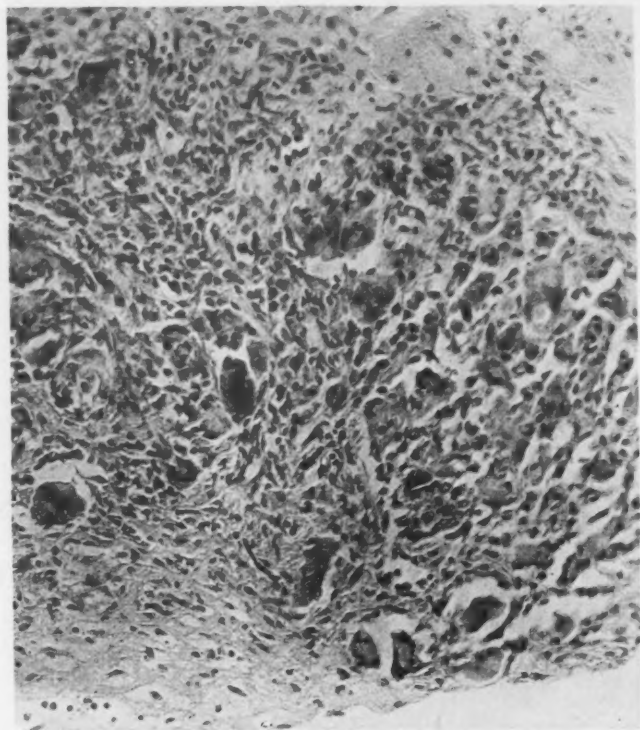


Fig. 13. M., age 50 years. Foreign body granuloma from larynx.

SUMMARY.

1. The lesions illustrated serve to call attention to certain of the less common pathological processes encountered in the routine examination of a large number of tonsils and miscellaneous nose and throat material.

2. It may be said that most of these lesions are of minor importance. In several instances, however, the clinical diagnosis depended upon the microscopic findings, notably the trichinae in the tonsil, the streptothrix in the larynx and the foreign body reactions.



Fig. 14. M., age 25 years. Cyst of cartilaginous nasal septum.

3. In other instances a diagnosis could only be made from a consideration of the embryological development, as the cysts of the nasal septum.

4. Finally the degenerations and metabolic changes may point to a further understanding of the much disputed functions of the tonsils and other nasopharyngeal structures.

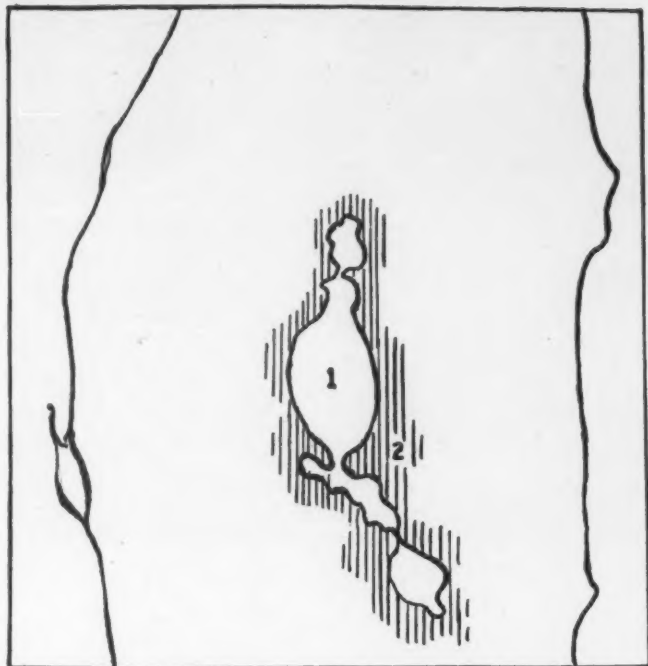


Fig. 14a. Diagram: 1—Cyst. 2—Mucosa.

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New York Post-Graduate Medical School and Hospital.

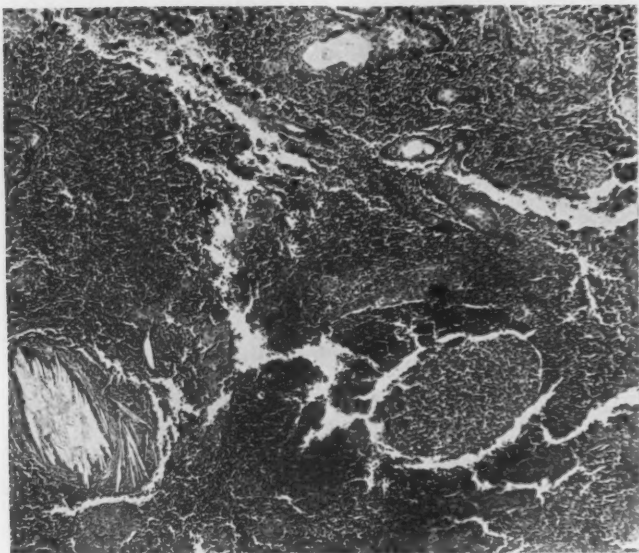


Fig. 15. M., age 61 years. Wall of branchial cyst with thymus tissue. Hassall's corpuscle filled with cholesterol crystals at the left.

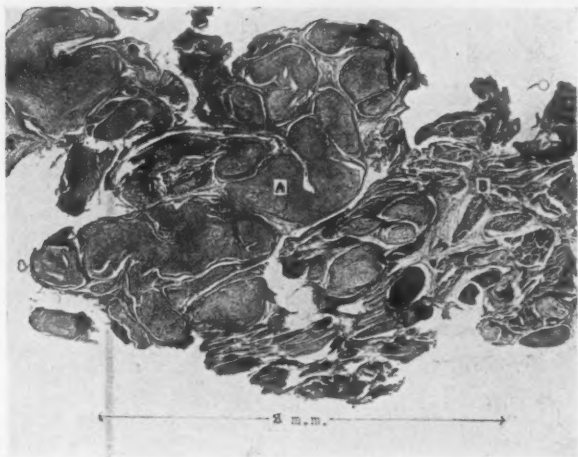


Fig. 16. F., age 14 years. Plexiform neuroma occupying the site of the right faucial tonsil. (No tonsil on right side).

W. H. M.
14

BLOODLESS TONSIL ENUCLEATION.*

DR. F. PETER HERMAN, West Palm Beach, Fla.

Undoubtedly, the faucial tonsil occupies the premier position as to surgical interference. Many ways and means have been devised to eradicate it. However, the fact remains that the laity, particularly the anxious parent, is thrown into a highly nervous state by the anticipation of hemorrhage following removal of the tonsils. Further, it is agreed, that there are many instances where the early removal of the tonsils would have given vastly different latent systemic pictures had not the patients, through fear of untoward results, refused operation. Bearing these facts in mind, an attempt has been made to use diathermy as an ally, in overcoming not only the prejudices against the operation by those in need of it, but to also give a pleasant outlook for the operator.



Fig. 1.

In adapting diathermy to the surgical enucleation of the tonsil, it was necessary to construct an instrument designed to utilize this agent to the best advantage of operator and patient. Its description, together with statements as to technique employed, anesthetic used, results obtained and views of the writer, follow:

Description of Instrument: This instrument (Fig. 1) is designed along the usual fenestrum type and has the included loop snare. On the distal side of this loop, guarded by projections, are seizing forceps, which close when pulled into their containing tube. The stem and loop are made of insulated material. The projecting proximal end of snare wire is attached to an insulated movable carriage, which when drawn backward diminishes the loop, as is usual in all snare instruments. Through this passes the current of the active electrode to the snare. Connected to the proximal end of the seizing forceps

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is attached the dispersing electrode, thus confining the major portion of the current to the tissue being removed, and making it possible to go beyond the coagulation point without harming the underlying tissues.

The Current: Even if the tonsillotome is properly operated with adequate skill, results may be unfavorable if high frequency current of unsuited character be employed. The high frequency machine need not be powerful, but for successful results it must deliver a current, the character of which properly co-ordinates with the tonsillotome when used in the manner described.

Technique: The tonsil is engaged in the fenestrum of the instrument, and the wire drawn taut by the first and third fingers in their



Fig. 2.



Fig. 3.

respective apertures on the carriage. The second or middle finger, resting upon the insulated finger grasp of seizing forceps, is pulled backward, causing the jaws of the forceps to grasp the tonsil and simultaneously make a good electric connection (Fig. 2). The current is now applied by pressure on a footswitch, thus closing the circuit. At the same time, the carriage is drawn backward, causing the snare wire to sever the tonsil at its base. The current being of a cutting nature, very little backward pull is required, and the need of lock and ratchet is eliminated.

There are cases in which one is unable to engage the tonsil, or the small pieces of tonsil left from a prior operation, into the fenestrum. In such cases Dr. Arthur Nilsen, of your city, has devised an unique

instrument which is called a dislocator (Fig. 3). This consists of a thin metal loop placed on the end of an appropriate handle. Its structural strength permits additional applied pressure and one is enabled to break down the existing fibrous bands, as well as to lift the submerged type tonsil from its base. Having thus dislodged the tonsil, it is quite easy to re-engage in the electric tonsillotome.

For cases not subject to either of the foregoing methods, there has been devised an insulated tubular member which is interchangeable with the insulated loop (Fig. 4), a separate seizing forceps (Fig. 5), and radio knife (Fig. 6). With these instruments, the dispersing electrode is attached to the seizing forceps engaging the tonsil, and the active electrode to the dissector or radio knife. The tonsil is now dissected in the usual manner. Upon completing the



Fig. 4.

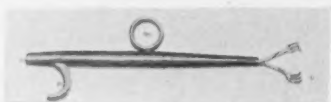


Fig. 5.



Fig. 6.

dissection, the tonsil is retained by the seizing forceps. The active electrode is transferred to the insulated open snare (Fig. 7) and the procedure completed.

Anesthetics: The type of anesthesia used was governed entirely by the age and condition of the patient. In a series of 433 cases, 190 were given a general anesthetic; 39, nitrous oxid; 151, ether, and the remaining 243, local anesthesia. A thorough test was conducted, with ether as an anesthetic. It was conclusively demonstrated that the time elapsed, from the removal of cone, to the application of current, was sufficient for the patient to have exhaled all nascent ether.

Results Obtained: 1. A clean, unobstructed operative field (bloodless). No operative or postoperative bleeding in the entire series ex-

cepting in two cases, one that of an aviator, who, on the second day following operation, flew to a tremendous height. Upon his return to the ground he bled considerably. The other case was that of a doctor, who, on the next day following operation, insisted on driving his car 60 miles to his home, and on succeeding days made several long drives, consequently suffering postoperative hemorrhage.

2. The slight searing of the fossa destroys any remaining tonsil tissue and infectious material, thus preventing regrowth and local infections.



Fig. 7.

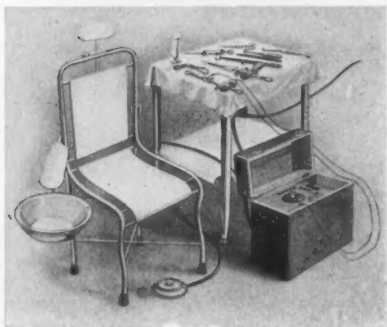


Fig. 8.

3. The sealing of the arteries, veins, and lymph places prevents secondary systemic infections.

4. The electrical stimulation of the underlying tissues promotes rapid healing, thus shortening the convalescent period.

5. Favorable psychological impressions are made upon the patient, owing to the absence of blood.

Conclusions: The application of diathermy to the surgical enucleation of tonsils by the methods outlined, or improvements thereof, is safe, sound, practical and efficient. It eliminates many undesirable features previously encountered in the employment of other methods.

1007 Harvey Building.

OCULAR INVOLVEMENT IN SINUS DISEASES.

DR. EDGAR S. THOMSON, New York.

(Continued from page 468.)

CASE HISTORIES.

In reporting the following histories much has been omitted for the sake of brevity. It is to be understood that X-rays are taken, that general examinations are made, that the Wassermann reaction is taken, etc. In a few cases where haste was of importance certain manifestly unnecessary tests were omitted, but it is correct to say that the ground has been well covered and a strong presumptive diagnosis has been made before the operation has been advised. Where nasal symptoms are marked it is so stated. Where they are not mentioned it is to be understood that the nasal symptoms were so slight as to be of little aid in diagnosis. Where the fellow eye is not mentioned it is understood to be normal. No classification of results has been given, for the cases vary so much in severity and in the time of duration before treatment was instituted that such figures would not mean much.

Case 1: L., male, age 44 years, first presented himself June 4, 1917. The right eye was slightly congested and he had a number of precipitates on the posterior surface of the cornea and a discolored iris. The attack had lasted several weeks, without much change. R. V.=20/30+ with +.50 cyl. ax. 90°. He had had a similar, less severe attack one year before, which had recovered very slowly. General examination elicited little of importance. X-rays of the teeth showed no signs of a toxic process. His hemoglobin was 82 per cent. He had a moderate leukocytosis. He was somewhat pale and had a certain amount of intestinal putrefaction. X-ray examination of the sinuses showed no marked density changes.

He was treated with atropin and hot applications and finally, early in July, pus was found in the region of the sphenoid. The ethmoids and sphenoid were opened and a radical operation performed. The corneal precipitates rapidly absorbed and in 10 days no traces of the ocular process could be discovered. There has been some difficulty in this case in keeping the sinus open as the bony tissue proliferates rapidly. If the sinus drainage becomes defective, a few floating spots appear in the vitreous or a few corneal precipitates appear. Proper drainage of the sinuses is at once followed by a clearing up of the ocular symptoms. His vision is now 20/15 in each eye.

(Reported in *Am. J. of Oph.*, No. 7, Vol. 4, July, 1921. Since the above was written the patient has shown a marked intestinal disturbance with bacterial sensitization. Colon implants improved him for a time, but he has had several relapses in the eye, and the sphenoidal wall has had to be cut down repeatedly. Finally, a year ago, a small accessory cell was opened. He has had no eye attacks since. Vision=20/15 in each eye.)

Case 2: L., female, married, age 35 years, presented herself for treatment Oct. 2, 1917. She had had "dizzy attacks" in March, 1916, and in September, 1916, the left eye had an attack of retrobulbar neuritis, from which she recovered, leaving a slightly white pasty-looking optic nerve with L. V.=20/30. Colors and form field were normal. X-ray pictures showed slight clouding of the ethmoids. The vision was very unsatisfactory, as the image would cloud and blur when the eye was used alone. No further deterioration had taken place when last seen in November, 1924.

This case was undoubtedly a sinus case which was limited by local treatment of the ethmoids and medicinal treatment internally. It serves to show that sometimes the process can be limited, although the nerve is damaged and the result cannot be said to be good.

Case 3: S., female, married, age 41 years, presented herself for examination Nov. 7, 1917. Glasses were prescribed. Vision was normal, and there were no fundus disturbances. She presented herself Oct. 18, 1921, with a marked cyclochoroiditis in the left eye, dating from May, 1920, and a large serous detachment up and out. General examination failed to elicit anything of importance. Nasal examination showed low grade ethmoiditis and low grade tonsillar infection. The tonsils were removed and the general condition improved. Tonsillar vaccine had been given the summer of 1920. The left eye was soft and the field defective. V.=P. L. Finally, in June, 1923, the left ethmoids and sphenoid were opened and the left eye became free from inflammation. She had, of course had the usual local treatment all through the spring of 1923. In May, 1924, a low grade attack of cyclitis came on in the right eye, with slight redness and a few corneal precipitates. She was at once taken into the hospital and the entire right side opened up—ethmoids, sphenoid and antrum, and the soft blind left eye removed. The right eye at once cleared up and R. V.=20/15. Sept. 3, she returned with a marked iridocyclitis in the right eye, numerous iris adhesions and some vitreous exudates. R. V.=20/50. After various consultations she was given a course of tubercular injections, the sinuses were kept scrupulously clean, and she was kept on full mercurialization (although the Wassermann had always been negative) and carefully watched to keep free of intestinal sepsis. She ran a long course of relapsing iridocyclitis, until in April, 1927, the tension rose and an iridectomy was done, after which the inflammatory attacks stopped, the eye became soft, and the lens became opaque.

This case was apparently a profound sensitization from a low grade sinus infection in which, even after operation, only temporary improvement was secured. Her general tone was bad throughout in spite of everything that was done.

Case 4: L., male, married, age 61 years, presented himself for treatment Jan. 16, 1918. Glasses were prescribed. Vision was normal. There was no fundus lesion. Oct. 7, 1924, he presented himself with a small yellowish patch of exudate above the macula in the right retina. This exudate was about one-fourth the diameter of the disc. Vision was unchanged. General examination elicited nothing of importance, but a slight discharge was found coming from the right antrum. As treatment seemed to have little effect, a radical operation was done Oct. 25. Considerable pus was found, and after this the exudate rapidly absorbed. By Nov. 21 the exudate had entirely absorbed, leaving only

a few pigment spots. On his last examination, April 18, 1927, conditions were unchanged and V.=20/10—.

This case is an interesting instance of the low grade form that antrum attacks sometimes assume.

Case 5: S., male, age 10 years, presented himself March 19, 1920, with acute conjunctivitis. Glasses were prescribed in 1922. V.=20/15—. In May, 1927, after a sinus attack vision in the left eye fell to 20/30 without visible lesion. Field and blind spot normal. Under energetic treatment and persistent washing out of the ethmoids he gradually cleared up and, July 1, L. V.=20/15. Field and colors normal.

Case 6: S., female, age 60 years, married, presenting herself May 7, 1920. For four months past she had had blurring of vision with, later, increase of tension in each eye. An iridectomy had been performed on the right eye five months previously, and one on the left eye four weeks previously. These operations were technically correct. There was no inclusion of the iris in the wound in either eye. In each eye there was considerable congestion. The vitreous was hazy, the left being the worse. Ton. R. 23, L. 31. Fields were normal. R. V.=20/40, L. V.=20/200. In spite of treatment the vitreous haze remained unchanged, the tension ran up and down, being at times as high as 30 in the right and 40 in the left. After persistent treatment and finding no cause except a low grade ethmoiditis, the sphenoids and ethmoids on both sides were exenterated June 14. The eyes became free from congestion in two days and tension fell in a week to R. 22, L. 25. July 2, the vitreous haze was much improved. R. V.=20/20, L. V.=20/30+. July 13, there were only a few scattered vitreous opacities remaining. Oct. 2, R. V.=20/20, L. V.=20/20—, T. 20 in each. She later had an attack of endocarditis, in the summer of 1921, and was very ill but finally recovered. The vision remained unchanged except for the development of a low grade of myopia. Tension remained normal. When last seen, April 28, 1927, the conditions were unchanged except for a few lens striae which had developed during the previous year. R. V.=20/20, L. V.=20/30.

Aside from the remarkable clearing up of the choroidal process, it was an interesting fact that the secondary glaucoma was not controlled until after the sinus operation.

(Case reported in *Am. J. of Oph.*, No. 7, Vol. 4, July, 1921.)

Case 7: B., female, age 54 years, married, presented herself Dec. 28, 1920. Vision had been slightly blurry of late. R. V.=20/20—, L. V.=20/30. Both eyes had numerous fine vitreous opacities. Careful general examination elicited only a slight intestinal disturbance. X-rays of the ethmoids gave a perceptible amount of cloudiness. In spite of treatment scattered choroidal spots appeared about April 19, 1921, and vision fell to 20/70. April 26, the ethmoids and sphenoids on both sides were opened. May 3, R. V.=20/30—, L. V.=20/70. The vitreous exudates cleared gradually up to a certain point, and then remained unchanged. In October, a central scotoma became definite in the left eye. Vision gradually rose to R. 20/20—, L. 20/30— in September, 1922. Fields not restricted. Vision gradually fell in the left eye during the next two years to 20/200, though there was no material increase in the vitreous opacities. In October, 1926, vision in the left fell to 4/200 and lens opacities began, finally going on to complete cataract. Oct. 21, 1927, there still remained some floating opacities in the right, but vision remained 20/20—. L. V.=P. L. In this case

it seemed impossible to secure complete absorption of the vitreous exudates, while there was no evidence of a second attack of choroiditis.

Case 8: C., male, age 19 years, presented himself Jan. 14, 1921. There was a small central scotoma for colors in the left eye. L. V.=20/40—. The scotoma was circular and extended 15° in each direction from the macula. General examination had raised the question of a thyroid disturbance, and X-ray examination had shown all of the bones of the skull to be abnormally thin. Jan. 15, the left ethmoids and sphenoid were opened and vision at once became 20/15. March 21, without any sinus symptoms, the vision fell to 20/20 and colors began to fail. May 13, the sinuses were reopened and some discharge found. Vision rose from 20/200 to 20/20, and then steadily failed until June 3, when the tonsils were removed and the floor of the frontal taken away. Vision=20/70. June 4, L. V.=20/15. Colors normal. Blind spot normal. These conditions remained the same until May 23, 1922, when vision again fell to 20/200, and field was concentrically contracted to 60° . There had never been any change in the appearance of the optic nerve. May 25, the sphenoid, ethmoids and antrum were opened and vision at once became 20/15. Another relapse occurred September, 1923, when vision fell to 20/200, and recovered after operation. In October, 1923, the right side became affected and vision fell to P. L. The right side was opened extensively, all sinuses being given full drainage. Vision became normal in three days. Relapses occurred on the right side in the same way until September, 1925, since which time the vision has been 20/10 in each eye. He had some 18 or 20 operations in all, with no change in the appearance of the fundus, but contractions of the field and loss of color perception. The last attack lasted more than five months and was relieved by operation and extraction of an abscessed tooth. All sorts of local measures were tried without avail, but only operative measures were effective. He seemed to become constantly reinfecting and to have developed a high degree of sensitization. The process could not have been a definite inflammation of the nerve, as the duration of the attacks would certainly have led to some degree of atrophy.

(Case partially reported in *Am. J. of Oph.*, No. 7, Vol. 4, July, 1921.)

Case 9: W., male, age 61 years, presented himself Jan. 20, 1921, with a central color scotoma in the right eye of two weeks' duration. R. V.=20/50; with correction. The scotoma extended 20° from the fixation point in all meridians. There was no fundus lesion. The ethmoids and sphenoids on the right side were opened Jan. 26, and the following day the color perception was much improved. R. V.=20/20—. Jan. 31, R. V.=20/15—, with correction. The color scotoma had entirely disappeared. No definite disturbances were found in the sinuses at the time of operation. Feb. 23, 1922, he was examined. R. V.=20/15—, colors were normal, and there were only a few pigment spots between the disc and macula. (Case reported in *Am. J. of Oph.*, No. 7, Vol. 4, July, 1921.)

Case 10: J., male age 55 years, married, presented himself May 4, 1921. Vision in the left eye had been blurry for 10 days. L. V.=20/30, with correction. No lesion but a small central partial scotoma extending to 30° in each meridian, with defective colors. Indefinite history of nasal disturbance. Sinus examination was advised, but he did not appear again until Oct. 13, 1923, when he reported that after his previous visit he had consulted a rhinologist, who opened the left antrum and found pus. It was washed out repeatedly and the scotoma rapidly disappeared. L. V.=20/20+.

Case 11: D., female, age 46, unmarried, presented herself for examination Oct. 4, 1921. Vision in the right eye had been blurred for six months. R. V.=20/70. The optic nerve was slightly white and blurry, with defective color perception and slightly contracted field. The left eye was normal. Nov. 15, the conditions were unchanged. The blind spot was normal. There was a definite central color scotoma. Dec. 8, the right sphenoid and ethmoids were opened. Very little change in the symptoms followed. Jan. 13, headaches and vomiting attacks began. The vision in the right eye gradually failed, and March 14, 1922, vision had fallen to 4/200. In the summer of 1922 she died, and autopsy showed an aneurism of the circle of Willis.

This case illustrates a possible confusion in diagnosis. It is most probable that the retrobulbar neuritis was complicated by a vascular condition, and yet it is certain that the operation did the patient no harm.

Case 12: N., female, age 43 years, unmarried, presented herself for examination Oct. 26, 1921. She had had attacks of serous iritis and choroiditis since 1907. General examination had been negative in its results. The right eye was normal. The left eye was slightly red, with corneal precipitates and vitreous opacities. L. V.=F. at 2 feet. The left ethmoids and sphenoid were opened Nov. 3, and the eye at once became less congested and vision rose to 4/200. She lived in Illinois, and went home Dec. 20, when she was said to be steadily improving. She died of tuberculosis in November, 1923. No further report of her vision could be obtained.

Case 13: R., male, age 36 years, married, presented himself Oct. 7, 1922. The left optic nerve was slightly reddened. L. V.=20/20—. Field and color perception normal. The vision in the left had failed in May and a partial exenteration of the ethmoids and sphenoid had been done in June. The vision had not become quite normal and lately there had been some neuralgic pain in the left side of the head. More thorough clearing out of the sinuses was advised, and when this was done the vision returned to normal and pain disappeared.

Case 14: R., male, age 18 years, unmarried, presented himself for examination Dec. 2, 1922. The right eye had always been defective. R. V.=20/30 w + 3 + .75 ax 105°. L. V.=20/15 w + .25 ax 165°. He returned for a slight change in his formula in December, 1923. Jan. 15, 1926, he reported that the vision in the right eye had failed five days before, following a cold. The right antrum had been opened and a small amount of pus washed out. The right optic nerve was blurred and swollen and a large area of edema lay above and to the nasal side of the nerve. There were a few whitish exudates and one small hemorrhage. R. V.=20/40. He was treated by ethmoidal suction and irrigations and the antrum was kept clear of pus, and on Jan. 22 the retino-choroidal disturbance looked much better, although there were numerous fine floating opacities in the vitreous which had appeared Jan. 19. Jan. 26, R. V.=20/30—, the exudates were beginning to absorb. Iodid of potassium was given in ascending doses. Feb. 9, he was much improved, and March 23, R. V.=20/30+, vitreous clear, exudation clearing. April 29, the optic nerve was normal and only a few atrophic spots were left in the choroid. His nasal treatment had been carried on energetically, but no operation had been done. A year later there had been no recurrence of the trouble, though an acute ethmoidal attack had necessitated treatment. A small scotoma remained opposite the atrophic area.

This case was one of the unusual ones where treatment gained control of the infection. The patient was very athletic and in excellent health.

Case 15: M., male, age 47 years, married, presented himself April 17, 1923. Vision in the right eye had been poor for the past 10 years. There was a slight "granular" change in the macular region. R. V.=20/40 — w — 1.25 ax. 180°. L. V.=20/15 w — .50 — .25 ax. 180°. There was nothing definite in his general history. March 4, 1924, the vision in the right eye had fallen to 20/100, and there was a slight posterior deposit on the center of the lens capsule. Nasal examination showed some increase of tonsillar and ethmoidal trouble, for which he had been treated for about eight months. The tonsils were removed March 20, 1924, but though the ethmoidal operation was advised, it was not done. April 29, he seemed much improved, the vitreous was clearer and R. V.=20/70. The nasal infection seemed well under control. Oct. 27, 1924, R. V.=20/50. Nov. 12, 1925, R. V.=20/40+. L. V.=20/30, some vitreous haze in both. Nasal treatment instituted again, and tonics administered as his general tone seemed poor. During the spring and summer of 1926 he took iodids, used dionin locally, and was under general observation. In October, 1926, the conditions were found unchanged. Dec. 10, 1926, he returned with a large detachment in the right eye, involving the upper half of the retina. He was treated at the hospital until the eye became quiet and until the tension became nearly normal; then after a period of rest it was found that the haze was increasing and tuberculin injections were begun Feb. 1. A trephine operation was done April 5, but the process continued with vitreous haze and ended with complete cataract. Tuberculin was continued until June. In September, 1927, he seemed much improved. The right eye was quiet and had good perception in a slightly contracted field; the left eye was quite clear.

The interesting question in this case was the explosive return of the choroiditis after the process had apparently gotten well under control.

Case 16: W., female, age 33 years, unmarried, presented herself June 6, 1923, with a history of blurring of vision in the right eye for a week. R. V.=20/100—. The right optic nerve was white and hazy and color perception a little uncertain. Field normal. June 9, a complete exenteration of the sphenoid and ethmoids on the right side was done. Slight discharge was found and considerable evidence of bone disease. Two days later the vision began to improve and on June 21 R. V.=20/20—. Colors almost normal. The optic nerve was only very slightly paler than the left. Two years later she reported the vision unchanged.

This case is a rather typical one of retrobulbar neuritis with rapid recovery.

Case 17: E., male, age 48 years, married, presented himself Dec. 15, 1923. The left eye had been defective since a child, following a blow, and had cloudy vitreous with vision of light perception in a defective field. Vision in the right had been failing for five months and was 20/100. A small area of plastic chorioretinitis about half the size of the disc occupied the macular region. This was very low grade in character. The ethmoids and antrum had been opened some years before. He improved somewhat under treatment, but had slight oozing of blood in the macula every two or three months, at which times the vision would fall, improving somewhat as the blood absorbed. Nov. 28, 1924, his vision was 18/200, and the plastic spot seemed to have some connective tissue. Dec. 1, the right antrum was opened and a radical operation done. Dec. 13, 1924, R. V.=20/100—. The blood and exudates seemed to be steadily absorb-

ing. Dec. 20, the scotoma measured 5° in each meridian. Feb. 19, 1925, the blood was entirely gone and only a small spot of connective tissue remained. R. V.=20/50.

This case illustrates the value of a radical procedure in a case in which the antrum had not been thoroughly cleaned out.

Case 18: W., female, age 42 years, married, presented herself for treatment Feb. 28, 1917. Glasses were prescribed. Vision was normal. There was no fundus lesion. Dec. 18, 1923, she presented herself with a low grade iritis in the right eye, which had been coming on in slight attacks at a few months' interval since 1918, growing progressively worse all the time. There were several posterior synechiae, the iris root was congested, the vitreous was hazy. R. V.=20/200. The left eye was normal. Repeated general examinations failed to show anything of importance except for eight abscessed teeth, which had been removed. The removal had seemed not to influence the iritic attacks. After two months' treatment and repeated urging, she submitted to a sinus operation, which was done Feb. 18. The right ethmoids, sphenoid and antrum were opened and evidence of ethmoidal disease found. At once the iris hyperemia subsided and the plastic exudates began to absorb. March 7, R. V.=20/70; March 24, R. V.=20/50+, and vitreous exudates were almost entirely absorbed. There were some atrophic changes in the choroid in the macular region. When last seen, July 30, 1926, the eye was in good condition and V.=20/40—.

This case was an instance of low grade toxemia over a long period. The operation stopped the iritic attacks with great promptness.

Case 19: R., male, age 32 years, married, presented himself Feb. 9, 1924. The right eye had been inflamed for three weeks and had posterior corneal deposits and vitreous haze. R. V.=20/200, L. V.=20/15. He had had four teeth extracted without much change in the process. Examination showed symptoms of ethmoidal and antral infection. Feb. 14, the right antrum was opened. The vision at once rose to 20/30 and the eye became white. March 3, the vision fell to 20/100 with more vitreous exudate. The sphenoid and ethmoids were exenterated, and March 15, R. V.=20/20. Vitreous at this time was almost perfectly clear. April 11, a few corneal deposits again appeared, and exudates increased in spite of treatment until June 2, when nasal vaccines were given. Improvement again occurred for a time until July 19, when a few precipitates appeared in the left eye, which ran a similar course to the fellow eye. January, 1925, tuberculin injections were begun. In February, the right ethmoids were opened, tonsils removed, and antra opened. Both eyes continued an up-and-down course until Jan. 30, 1926, when a mastoid operation was done. May 18, 1926, the tension rose in each and a double iridectomy was done May 21. He recovered well from this procedure, and September, R. V.=20/200, L. V.=20/30. July 25, 1927, R. V.=20/200, a few slight lens opacities, nerve somewhat cupped; L. V.=20/30, a few lens opacities. Both eyes entirely free from congestion.

This case is a marked example of a profound sensitization. While it seemed best at the time to proceed with conservatism in the nasal operations, one cannot but wonder what the course of the case would have been if both sides had been completely opened at the start.

Case 20: K., male, age 32 years, married, presented himself Oct. 21, 1924. For the past two months vision in the right eye had been blurry. R. V.=20/30. The macular region was "granular", with small acute exudates in the choroid.

Field and blind spot normal. Nasal examination showed a small amount of pus coming from the sphenoid on the right side. Dec. 29, R. V.=20/40—. Dec. 30, a pansinus operation was done on the right side. Jan. 3, the exudates in the macular region were absorbing rapidly. R. V.=20/20+. Jan. 30, R. V.=20/15. Last seen March 9, 1927, R. V.=20/15—. Macular region looked normal.

Case 21: H., female, age 26 years, married, presented herself Nov. 4, 1924. Ten years previously vision in the right eye failed during an attack of tonsillitis. The tonsils were removed as soon as the acute symptoms subsided and the vision returned to normal. The vision in the eye had been slightly blurry and easily fatigued. On testing, while the vision would at first be 20/15, as she looked at the letters blurring would occur even with the perfect correction. The right nerve was slightly pale, and there was a curious deposit of connective tissue on the margin of the nerve. Field and colors were normal.

There can hardly be much question that this case was one of sinus disease, partly relieved by the tonsillar operation. The infection was controlled and the nerve recovered with only slight damage. There has been no recurrence of the trouble, October, 1927.

Case 22: C., female, age 4 years, was brought in Dec. 5, 1924. Low grade iridochoroiditis in left eye with acute arthritis of both knees. The pupil was adherent and the eye slightly red. The vitreous was full of haze. The trouble had existed for eight months. The tonsils had been removed five months before. Slight improvement followed and then a relapse occurred. She was found to be sensitive to the same bacterium that had occurred in the tonsils, a streptococcus hemolyticus. Vaccine treatment was instituted and the arthritis cleared up in two months. Vision was at first about 10/200, but steadily improved to 20/70 in January, 1925, and view of fundus could be obtained. Dionin locally. March, L. V.=20/40—. October, L. V.=20/30, with correction, which has continued to the present time, October, 1927.

This case was an interesting example of a profound sensitization which was not completely relieved by the tonsillar operation.

Case 23: K., male, age 47 years, married, presented himself for examination May 21, 1925. The left eye had become blurry three years previously. There were no nasal nor general symptoms. Nothing had been done with relation to the sinuses. The right eye was normal. The left had a partial central scotoma for form and an absolute one for colors. L. V.=Hand movements. The optic nerve showed very little change. On account of the length of time that had elapsed and the doubtfulness of the result, the patient decided not to submit to a sinus operation.

It is most probable that this was a sinus case.

Case 24: F., female, age 13 years, presented herself June 15, 1925. Vision had been 20/15 in each eye, but had failed thereafter and was now R. V.=20/40, L. V.=20/100. Both nerves were slightly pale and hazy—a typical picture of retrobulbar neuritis of low degree. The colors were unchanged, but the form fields contracted (Fig. 1). Blind spot enlarged. No nasal symptoms. Both sphenoids and ethmoids were opened June 17. Recovery was uneventful and the nerve process rapidly subsided. June 26, 1925, V.=20/15 in each eye, the fields were normal, and the nerves were of normal colors. Two years later she remained unchanged.

This case was unusual, in that both sides were involved. The age of the patient was also noteworthy.

Case 25: G., male, age 24 years, unmarried, presented himself Aug. 5, 1925. He had had attacks of iritis in both eyes in 1922. Removal of the tonsils had stopped the attacks. For the last two weeks the left eye had been the seat of a low grade iritis. This cleared up under treatment, but in February, 1926, the right eye became inflamed. Vaccines were used with little effect. Nasal examination was negative. A series of relapses in each eye continued until Feb. 16, 1927, when, after discovery of low grade secretion, both antrums were opened. After this he improved markedly, and had only two slight relapses up to May 7, 1927. For five months he has been normal.

This case shows that a nasal infection is not always relieved by the removal of the tonsils. A more prompt discovery of the infection, had that been possible, would have no doubt cut off the attacks sooner.

Case 26: J., male, age 46 years, married, presented himself Nov. 16, 1925. He had had grippe, followed by pneumonia, Sept. 2. Vision had failed since Oct. 1. Both nerves were pale and atrophic. Vision=hand movements in a small central field—about 30° concentric. A complete exenteration of the sphenoid and ethmoids was done, and vision improved to 8/200 in a small field, where it has since remained.

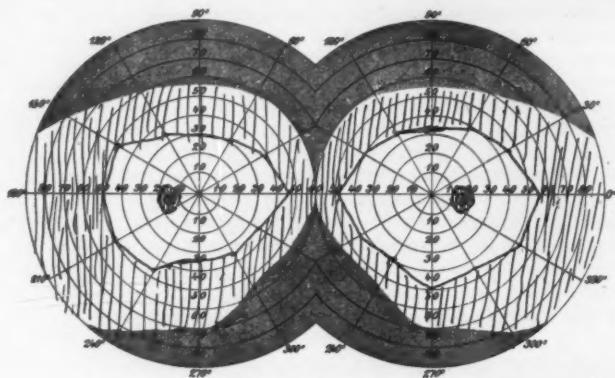


Fig. 1. Case 24.

noid and ethmoids was done, and vision improved to 8/200 in a small field, where it has since remained.

Case 27: M., male, age 18 years, unmarried, presented himself Oct. 31, 1925. For five months past his vision had been failing. Both nerves were pale and were slightly hazy. It was reported that they had been slightly swollen. Vessels not contracted. R. V.=4/200, L. V.=2/200. Colors slightly defective. Fields concentrically contracted to 60° . There had been an incomplete opening of the ethmoids. A complete exenteration of both sides was advised and later done. Vision afterwards improved to 20/200, where it has remained.

This case illustrates the fact that partial atrophy does not always progress when the cause is removed.

Case 28: L., male, age 19 years, unmarried, presented himself Oct. 23, 1925. The vision had been failing in the left eye for one week. There were a few deposits on Descemet's membrane and considerable vitreous haze. Fields, colors and blind spot normal—in other words, a so-called simple cyclitis. L. V.=

20/100. The left ethmoids were cloudy in the X-ray picture. Otherwise the general examination was negative. Oct. 28, the sphenoid and ethmoid on the left side were widely opened. Nov. 5, L. V.=20/50; Nov. 23, L. V.=20/30—; Dec. 7, L. V.=20/20—; Dec. 24, L. V.=20/20+; deposits almost gone. March 10, vitreous entirely clear, L. V.=20/20+. Peripheral areas of chorioidal atrophy could be seen. Nov. 15, 1926, the tonsils were removed, as a few vitreous floaters did not absorb and the tonsils gave evidence of infection. After this the eye cleared completely.

This case shows that while the sinuses were the main source of infection, it was nevertheless necessary to remove the tonsils to gain complete control.

Case 29: F., female, age 49 years, married, presented herself March 2, 1926. She had had a low grade attack of iritis in the right eye for six weeks. The eye was slightly red and painful, with numerous posterior synechiae on all sides of the pupil. The vitreous was full of floating haze. There was only a slight amount of plastic material on the lens surface. R. V.=20/200 with—1.50 s. Tension normal. The pupil was partly dilated by atropin. These attacks had been gradually coming on for at least 15 years. The attacks would recover under routine treatment, but would recur at four to six months' intervals. Careful tests had failed to elicit a cause. During the attacks the vision would fall and recover partly during the intervals. There had been a very gradual but steady deterioration of vision for some years past. An attack of grippe delayed surgical measures, but finally on March 27 a pansinus operation was done on the right side. Severe reaction followed, but she made a good recovery and the eye at once became free from congestion. April 10, the vision was 20/100, and the vitreous haze seemed to be absorbing. Iodid was given in small doses. June 9, the eye was entirely free from congestion, several of the synechiae had ruptured, and the vitreous was almost clear. R. V.=20/30 — w — 1 — 2.25 ax 60°. There were some slight changes in the choroid at the macula. Oct. 1, 1927, the condition remained unchanged. She had had no further attacks.

This case is a very unusual one in its duration, and must have been caused by a very low degree of infection. Nothing definite was found on opening the sinuses, but the correctness of the diagnosis can hardly be questioned, in view of the course of the case after operation.

Case 30: L., female, age 21 years, unmarried, presented herself May 25, 1926. Two-and-a-half years ago the vision in the left eye became suddenly blurred. The tonsils were removed and several teeth were extracted. After a period of general treatment the vision returned to normal. Three weeks previously the vision in the right eye became blurry and had gotten steadily worse. R. V.=5/200 with correction. The right optic nerve was blurred and swollen (about 2 D.), with numerous hemorrhages and plastic exudates. May 28, a pansinus operation was done on the right side. Recovery was uneventful and local findings indefinite. June 11, R. V.=20/40; the nerve was almost normal. July 13, she reported by letter that the vision in the right eye was "almost as good as the left".

This case shows that while the removal of the tonsils may for a time control the infection, a recurrence through sinus activity may occur.

Case 31: D., male, age 39 years, married, presented himself June 2, 1926. For two weeks past the right eye had been blurry. There was a low grade cyclochoroiditis with corneal precipitates and vitreous opacities. R. V.=20/30.

No nasal findings. June 16, the ethmoids and sphenoid on the right side were exenterated. He at once began to improve, and July 6, R. V.=20/15—, congestion gone, eye almost clear of vitreous opacities. Last seen in May, 1927, when the eye was entirely normal.

This case is an interesting example of the recovery of an eye that had not had time to become markedly sensitized.

Case 32: Y., female, age 61 years, married, presented herself July 6, 1926. There was an acute iridocyclitis in the left eye, with posterior corneal precipitates, ciliary congestion and vitreous haze. Both lenses had striate opacities. There was tonsillar infection and a very low grade ethmoiditis. She was treated until Jan. 17, 1927, when the tonsils were removed; after which the eye became free from congestion, the ethmoiditis improved, and vision improved from fingers to 20/200, Oct. 6, 1927.

This case is still under observation, but the process is controlled and it seems improbable that an ethmoidal operation will be necessary.

Case 33: T., male, age 55 years, married, presented himself Sept. 30, 1926. The right eye had become blurry two days before. R. V.=20/40. There was a small scotoma in the upper inner field. A white patch of exudate lay to the inferotemporal side of the macula. There were two thrombosed vessels passing through the exudate, and a few scattered hemorrhages. Beyond some intestinal disturbance there were two abscessed wisdom teeth, and a long history of nasal disturbances. The tonsils had been removed four years before. There was a history of two attacks of peritonsillar abscess, six and three years before the tonsillectomy. Examination showed a low grade ethmoiditis, worse on the right side. Oct. 9, a complete pansinus operation was done on the right side and the vision at once began slowly to improve. Nov. 15, R. V.=20/20, with some distortion of the letters. The exudate was almost absorbed. Gradual improvement took place all through the spring of 1927, and in June, 1927, R. V.=20/15—, with only slight distortion of the letters. A small scotoma remained.

Case 34: S., female, age 62 years, married, presented herself Nov. 1, 1926. The right eye had a few floating vitreous opacities, fine and "dusty" in character. R. V.=20/20. The left eye had been troubling her for the past year. She had had a cyclochoroiditis and the vitreous was full of dense opacities. An iridectomy had been done for increased tension five months previously. Six weeks later a trephining was done. The eye was red and somewhat painful and the tension elevated. No view of the fundus could be obtained. L. V.=fingers at 1 foot. Tonometer, Rt. 20, L. 27.

General examination gave little of interest. A sinus operation on the left side, presumably on the ethmoids, had been done in 1921. There were numerous adhesions and the ethmoids had not been thoroughly cleared out. There were evidences of nasal infection. The tonsils, which were also infected, were removed Nov. 12, and following this operation the congestion grew less, the tension fell to 21 m.m., the vision rose to 3/200. Dec. 4, the right antrum was opened and pus washed out, and the right ethmoids treated. Later an acute otitis developed, from which she recovered slowly. The nasal infection seemed under control after this, but as the patient's resistance seemed poor the left ethmoids were not opened. In March, 1927, a course of tuberculin injections was begun, which was continued until July. The eye grew steadily less congested until in May the redness had entirely gone, the tension remained normal,

though the vitreous haze showed very little tendency to absorb. The case is still (November, 1927) under observations.

This case is one of poor resistance with high sensitization and the outcome is problematical. However, if the nasal infection had been allowed to go on it is most probable that the right eye would have become involved, and it is doubtful if the choroiditis in the left could have been controlled.

Case 35: Y., female, age 56 years, married, presented herself Dec. 8, 1926. She gave a history of several attacks of iritis in the left eye during the past two years. The left eye had a slight iris congestion with numerous floating opacities in the vitreous. L. V.=20/50. A low grade ethmoidal infection was found on the left side. The tonsils were badly infected and one tooth had an apical abscess. The tooth was later removed, but as the tonsillar removal was refused she was put on a course of vaccines and careful intestinal regulation, under which the iritic congestion cleared up, the vitreous opacities absorbed somewhat, and the vision rose to 20/30. This case is still under observation and while the nasal infection has been for the time controlled, it is probable that removal of the tonsils and opening of the left ethmoids would have cleared up the process more satisfactorily.

Case 36: McN., female, age 23 years, unmarried, presented herself Dec. 30, 1926. The right optic nerve was blurry and red with some retinal exudates and hemorrhages in the neighborhood of the nerve. The blind spot was enlarged; the field was normal. Colors were normal. R. V.=20/30—. The sphenoid and ethmoids on the right side were opened the latter part of February, as no improvement had occurred under treatment. March 10, 1927, the nerve was normal, all exudates were absorbed, and vision was 20/15—.

Case 37: W., female, age 45 years, married, presented herself Feb. 4, 1927. Vision in the left eye had failed six weeks previously. There were extensive exudates and hemorrhages all through the macular region and regions adjacent for about four disc diameters. There were many thrombotic vessels and the nerve was red and hazy. V.=fingers at 1 foot. Examination showed bony disease and slight discharge in the left ethmoids. A complete opening of the sinuses on the left side was done Feb. 8. The exudates and hemorrhages began at once to absorb, and March 2, L. V.=5/200. On April 15, an attack of hemorrhagic glaucoma set in, which persisted until Oct. 1. The tension was up to 60 m.m. most of the time. A paracentesis was done during the period of greatest severity, and the tension gradually subsided. Oct. 1, 1927, the tension was normal, the vitreous clear, all hemorrhages and exudates had absorbed, and only a few retinal scars remained with obliterated vessels. L. V.=0.

This case illustrates the degree to which these retinal cases will progress if treatment be not instituted promptly.

Case 38: F., male, age 34 years, married, presented himself Feb. 7, 1927, complaining of a blur in the right eye which had been coming on for several weeks. The right optic nerve was slightly reddened. The blind spot was normal. V.=20/15. After a period of treatment, during which he gave distinct evidence of ethmoidal disease on the right side, the blind spot became larger and vision fell to 20/30+. The field was normal and the colors were normal. The sphenoid and ethmoids were opened June 28. His recovery was retarded by an attack of pleurisy, July 30, but after this he improved steadily until Sept. 29, his nerve was normal in appearance, the field and blind spot were normal, and he was no longer conscious of any blur.

This case was operated in the early stage of the process on account of the definite ethmoidal symptoms.

Case 39: H., female, age 51 years, married, presented herself March 1, 1927. Vision in the right eye had been cloudy for nine days. R. V.=20/40. There was a large area of retinal edema, with some exudates. No vascular changes. Field contracted above (Fig. 2). Some distortion of letters. A pansinus operation was done on the right side. March 18, R. V.=20/15, edema gone. Field

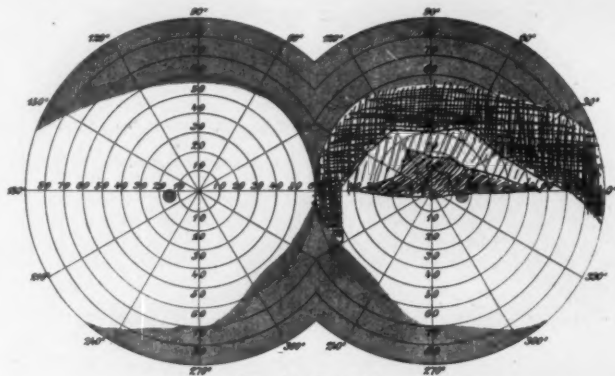


Fig. 2. Case 39.

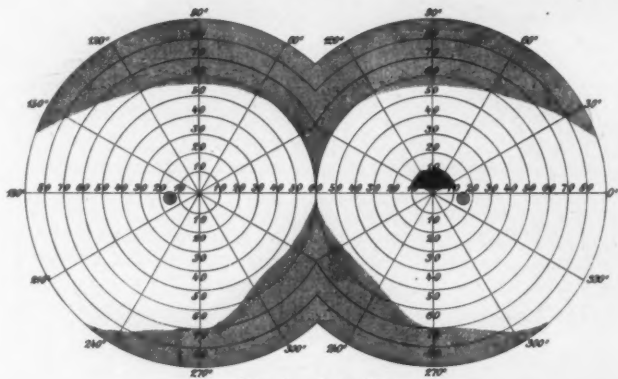


Fig. 3. Case 39.

improving. Gradually improvement until Sept. 28, 1927, when no fundus lesion could be discovered. Scotoma down to small degree (Fig. 3). R. V.=20/15. Distortion gone.

This case illustrates the advantage of prompt operation.

Case 40: D., female, age 22 years, unmarried, presented herself June 27, 1927. Vision in the left eye had failed suddenly four days previously. There

was a large area of edema extending from the nerve to beyond the macula. The vessels were engorged, the nerve was hazy and reddened, and there were some few plastic exudates. L. V.=fingers at 1 foot. There was a large central partial scotoma. General examination was made, and on account of the severity of the process a double pansinus operation was done, June 30. The sphenoids were found half-filled with a hyperplastic membrane. July 6,

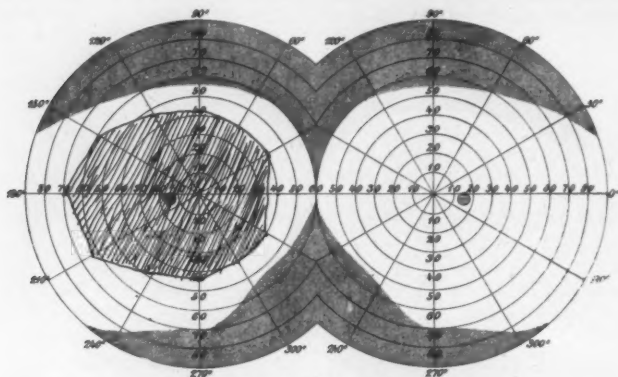


Fig. 4. Case 40.

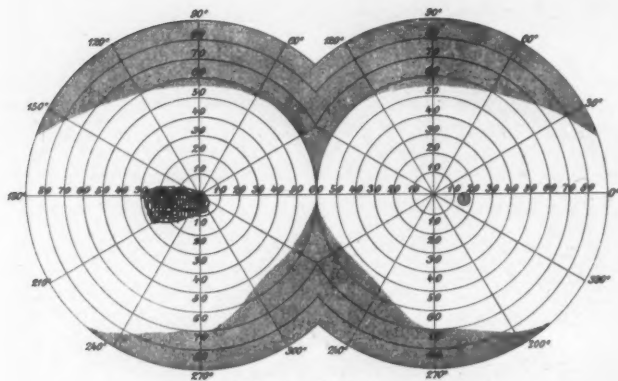


Fig. 5. Case 40.

L. V.=20/200. The vessels were quieter, the nerve less red, and the edema only one-third of the original area. Aug. 20, a small scotoma remained, and only the usual cicatricial and degenerative changes between the nerve and macula. L. V.=20/200. Nov. 1, the condition remained unchanged (Figs. 4 and 5).

This case was a neuroretinitis of a violent type. It is most probable that the right eye would soon have become involved.

Case 41: R., female, age 30 years, married, presented herself July 2, 1927. The vision in the left eye had gotten blurry two years ago and had only partly recovered under treatment. The sinuses had been X-rayed, and as there were no density changes nothing had been done. The left nerve was pale and a little blurry, with normal sized vessels. The visual field was normal. Color perception in the left was very defective; in the right it was normal. Blind spots were normal. L. V.=20/40—. The vision had remained unchanged for the past year. This was almost certainly a retrobulbar neuritis from sphenoidal disease, and an instance of a partial non-progressive atrophy.

Case 42: M., female, age 35 years, married, presented herself Nov. 7, 1927. There had been a large blurry spot in the field of the left eye for two weeks. L. V.=20/20 (eccentric). There was a large area of retinal edema extending from the disc above the macula and somewhat to the outer side. There were several thrombosed vessels. The nerve was slightly red. There was a large scotoma in the inferonasal quadrant, which extended to the macula. Blind spot

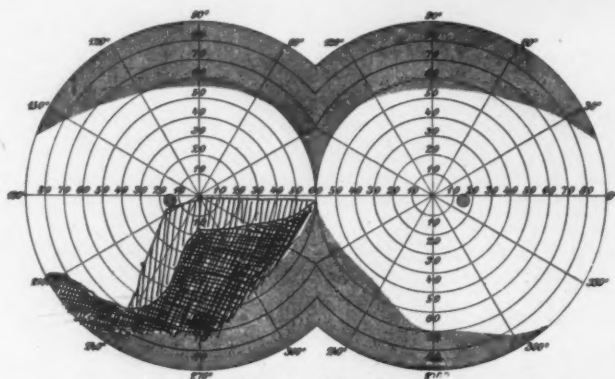


Fig. 6. Case 42.

not enlarged. On account of the fact that the process was so extensive and so near the macula and that no improvement had occurred under treatment, the left ethmoids and sphenoid were opened Nov. 9. Recovery was uneventful, and Nov. 12, the area of edema began to improve. Nov. 21, L. V.=20/15—. Scotoma smaller. Dec. 1, only a faint indication of the original area showed near the disc. Jan. 20, only a few lines of cicatricial tissue were to be seen. Vessels normal. Nerve slightly pale. Scotoma much reduced in size, but probably permanent. L. V.=20/15— (Figs. 6 and 7).

This case was almost as severe as Case 37, but fortunately the macula was not badly involved and the thromboses were not nearly as severe, so that no glaucomatous attack occurred as in the other one.

Case 43: D., male, age 29 years, unmarried, presented himself Nov. 16, 1927. Vision in the right eye had been blurred for 10 days. R. V.=20/40. There were diffuse fine vitreous opacities and a few precipitates on the posterior surface of the cornea. The tonsils were badly infected, but there were no signs

of ethmoidal infection. The tonsils were removed Nov. 21, and vision improved to 20/30. The corneal precipitates disappeared and the vitreous opacities became somewhat less. Iodid of potassium was given. Dec. 14, the vitreous became full of diffuse opacities, and vision fell to 20/200. Dec. 21, a pansinus operation was done on the right side and the vision began at once to improve. Jan. 3, R. V.=20/20, the diffuse vitreous opacity had gone, leaving only a number of large coagula which blurred the vision when they floated in line. These have since been gradually subsiding (Feb. 15, 1928).

This case was a mixed infection and it was considered unwise to open the ethmoids in the presence of such a marked tonsillar infection. On account of the lack of ethmoidal findings it was hoped that the removal of the tonsils would stop the process; but when a recurrence took place it seemed best to operate on the ethmoids and sphenoid.

Case 44: K., female, age 56 years, married, presented herself Nov. 19, 1927. The left eye had become blind 10 years ago after a series of iritic attacks and

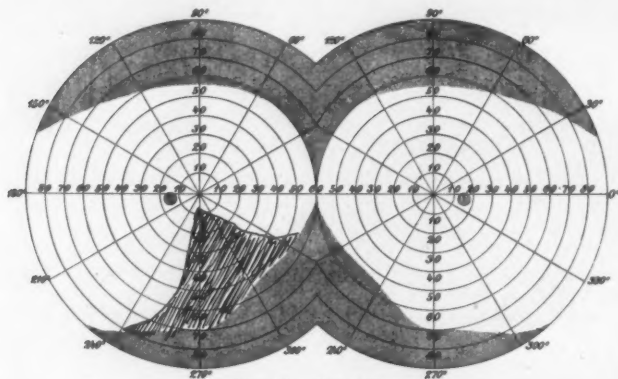


Fig. 7. Case 42.

was slightly soft, with adherent pupil, "chalky" looking cataract, and light perception in a doubtful field. There had been a series of low grade iritic attacks in the right eye for the past year, and the vision had been gradually failing. The eye was slightly red, with a somewhat contracted pupil, five or six firm synechiae, and a poor fundus reflex. R. V.=20/70—, with correction. She had not been able to read for six or eight months. Beyond a slight chronic colitis the general examination showed nothing of interest. Dec. 8, after the ethmoids had been washed out with suction, the vision rose to 20/50, but soon dropped off to 20/100 or 20/70 again. Dec. 14, a double pansinus operation was done. The ethmoids presented evidence of bony disease, and an old, thickened hypertrophic membrane in the sphenoid on the right side. The left side was therefore operated on. Also Dec. 20, the vision in the right eye began to improve, and Dec. 21, the eye was white, the vitreous clearer, and V.=20/40. Jan. 23, R. V.=20/30—, with correction. She read J. No. 1 without difficulty. It was difficult to see the macular region on account of the pupillary adhesions.

This case was evidently an ethmoiditis on the left side which finally extended to the right. It was evidently a very slow process, but would no doubt have been serious in its results.

CONCLUSIONS.

Summarizing the present study it seems proper to say:

1. Sinus diseases cause iritis, cyclitis, retinitis, and choroiditis, in almost as great frequency as they cause optic neuritis.
2. The diagnosis of the causal relationship is so difficult for the rhinologist, in many cases, that it must remain for the ophthalmologist to decide when the sinus operation should be done.
3. Time is of the greatest importance, as destructive changes in the ocular tissues often take place with great rapidity.
4. Certain clinical pictures in the eye are almost diagnostic of sinus disease and others are so suggestive that, taken in connection with the absence of other causes, a diagnosis of strong probability can usually be made.
5. The dangers of a correctly done sinus operation are not sufficient to justify a temporizing course where the integrity of the eye is endangered.
6. The closest co-operation is essential between the ophthalmologist and a rhinologist of proved technical ability to secure the best results.
7. In the vast majority of cases, if treatment can be promptly instituted, the results of operation are excellent—in many cases remarkable.
8. Even in late cases, where a reasonably positive diagnosis can be made, operation should be done, as the results are often surprisingly good.

121 East 60th Street.

THE QUESTION OF BLOOD SHIFTING IN OTOGENOUS COMPLICATIONS.

DR. CONRAD K. GALE, New York.

On reviewing the literature with reference to the value of the quantitative and qualitative blood count in otogenous complications, *viz.*: Bulson, Levy, Arneth, Urbantschitsch, White, Dench, Mcker-non, etc., one is at once struck with the fact that here the blood count serves but little practical purpose. Operative indications are found in the clinical aspect of the patient, with high temperature further signifying exposure of the sinus.

The recent work of Adolf Glasscheib in the January, 1927, number of the *Wiener Monatschrift für Ohrenkeilkunde* is therefore of special interest. Here, he makes use of his index to differentiate cases of purulent mastoiditis, perisinus abscess and sinus thrombosis. This index is based upon the production in the blood of young forms of white cells in acute infections, known as blood shifting, to the left. These young forms of polymorphonuclear neutrophiles are characterized by having unsegmented nuclei and staff formed nuclei. The more pronounced the shifting to the left is, the more numerous will be the young forms found, and incidentally myelocytes may also be seen. The relation of the unsegmented neutrophiles (young forms) to the segmented neutrophiles (mature forms) gives the index. Thus, if there are four unsegmented and six staff formed neutrophiles (10 young forms altogether), with 50 segmented polymorphonuclear neutrophiles we have a rate of 1 to 5. This ratio is called the index.

Glasscheib's results may be tabulated as follows:

1. Cases with normal eosinophile count and an index from 1-10 to 1-8 showed in the mastoid cells no free pus, only granulations.
2. Cases without eosinophilia and an index to 1-3 showed in the mastoid cells free pus and granulations.
3. Cases with an eosinophilia of 3 to 6 per cent and an index of 1-3 to 1-2 showed pus in the mastoid cells encroaching on the sinus. For the eosinophilia one must exclude parasitic diseases, vagotonia, urticaria, prurigo and G. C.
4. Perisinus abscess gives a neutrophilia of 85 to 90 per cent; and an index to 1-3. Diseases like erysipelas, angina and appendicitis must be excluded.

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5. Sinus thrombosis is characterized by an eosinophilia, and an index of 1-2 to 1-1. Similar blood findings are found in T. B., pneumonia, diffuse purulent peritonitis and diphtheria.

The index as used by Glasscheib is quite original, but the question of blood shifting is not new and was the cause of much interest years ago. Recently, Weiss has shown the possibilities to which blood shifting can be put. Unfortunately, this is in a way a negative work. We have not found the index to be reliable in making a differential diagnosis between purulent mastoiditis, perisinus abscess and sinus thrombosis.

We wish to present the results of over 250 blood counts, in all of which the index was obtained. Because of the fullness of the literature case histories are omitted and only the results of blood counts in the different types of cases incorporated. This work was done at the Wiener Allgemeine Krankenhaus in 1925 and 1926.

Levy presents the following as the normal limits in the blood count: Leuc., 5-10,000; bas., 0-1 per cent; eos., 2-4; myel., 0; unseg., 0; staph., 3-5; seg., 58-66; lymph., 21-35; mon., 4-8; total neutrophiles, 67 per cent.

Thus we may find an index in a normal count as low as 1-11. The question naturally arises as to just when blood shifting is pathological. This necessitates a knowledge of the blood cytology before illness in borderline cases. It is important to realize that in normal cases where there is no blood shifting to the left, an index nevertheless exists.

Cases of acute otitis media purulenta: Leuc., 7-15,000; bas., normal; eos., normal; myel., 0; unseg., 0-2; staph., 3-7; seg., definite increase, 66-75; lymph., as low as 10; mon., diminished, 1-3 total neutrophiles below 87 per cent.

The above blood pictures were obtained before paracentesis, or spontaneous rupture of the drum, occurred. The patients were between two and six days ill. The wide range encountered here emphasizes only too well the axiom of virulence of infection and resistance of the host. Forty per cent of the above patients showed distinct blood shifting to the left. The index varied from 1-3.5 up. In general, the earlier the case was seen, the more evident were the blood changes. We divide the above cases into three groups.

1. Those requiring no paracentesis: Of 12 cases requiring no paracentesis we found a gradual fall in the blood count so that by the tenth day after the onset normal blood pictures were found in all cases. The lowest indices found were 1-7, 1-9, and 1-9.5, respectively.

2. Those requiring paracentesis, but recovering without antrotomy: To this group are also added patients seen for the first time with acute perforated discharging ears. In this group of 15, indices as low as 1-3 were found. In all these cases as soon as free drainage was established a slow change was found to take place in the blood picture, with a reduction of the total white count occurring before the blood shifting to the left became less pronounced. Two weeks after onset of the illness, slight leucocytosis and less marked shifting to the left were still evident. All cases were still having aural discharge.

3. Those in spite of paracentesis advancing to antrotomy: This group includes 10 cases. Since the blood picture is at once affected by spread of the infection to the soft tissues, these cases are those in which the infection remained localized in the middle ear and mastoid system. Operation in all these cases showed granulations and pus, or pus alone in the mastoid cells.

The most important fact brought out by the cases followed through is that the advent of a clinical mastoiditis does not disclose itself by marked changes in the blood.

Operative indications were arrived at for purely clinical reasons, and at times when *the blood picture was showing no changes*. Two cases in particular had normal counts and no blood shifting to the left. In both cases pus was found in the mastoid cells. Two cases were of doubtful blood shifting, having indices of 1-12. Two cases had indices of 1-10. Four cases had respective indices of 1-3, 1-5, 1-7 and 1-7.

The above three types of cases showed indices ranging from 1-3 to 1-22. This wide range is due in part to the peculiarity of an individual in his reaction to an infection, and also to the drainage system from the middle ear and mastoid region. Glasscheib found indices varying from 1-3 to 1-10 in cases of mastoiditis where, either granulations or pus were found in the mastoid cells. In the above quoted cases not developing mastoiditis, similar indices were also found.

An analysis of 16 cases admitted as clinical mastoiditis purulenta shows: 1. 20 per cent of cases with normal or slightly elevated white counts. Indices in this group ranged from 1-10 up. 2. 60 per cent of cases with total white counts above 8,500 and below 11,000. Indices in this group from 1-4 up. 3. 20 per cent of cases with total white counts above 11,000 and below 14,000. Indices in this group were from 1-5 up.

It is evident that these cases were also operated on because of clinical findings, with very little help from the blood picture. It appears that the most marked blood changes are those occurring before rupture of the drum. The advent of a clinical mastoiditis because of its gradual encroachment upon the mastoid cells and limited absorption via the blood and lymph vessels, is not heralded by marked blood changes. Paradoxically, the lowest indices did not indicate the most severely ill. It appears because of the peculiar slow drainage from the mastoid that physiological adaptation of the hematopoietic system has time to take place, and so does not show the violent reactions encountered in other acute infections. Hence at the beginning of the infection while absorption from the middle ear is taking place, lower indices are found than those seen several weeks later when a clinical mastoiditis has occurred. *In view of this fact the lower the index is in direct proportion to the length of illness indicates in large measure the severity of infection. However, a high index does not negate extensive mastoid destruction, this being especially true in streptococcus mucosus mastoiditis.*

The blood in its reaction from the normal will attain its greatest deviation in cases of sinus thrombosis, perisinus abscess and meningitis due to otogenous complications.

Six cases of sinus thrombosis and eight cases of perisinus abscess (including cases where cells lining the sinus were filled with pus) showed indices ranging from 1-1 to 1-5. There was 100 per cent blood shifting, and high leucocyte counts, above 10,000. Eosinophilia when present was only slightly increased, the highest being 5 per cent. We could make no definite differential diagnosis between the two from the index; the safest guide, and the one most consistently correct as to the likelihood of these complications was found in the temperature chart.

Glasscheib's contention that an index of 1-2 to 1-1, with an eosinophilia, indicates a sinus thrombosis is based upon the physiological conditions enumerated above. Unfortunately, all cases of sinus thrombosis do not give this typical blood reaction, and higher indices may also be seen.

In searching the literature, the prize work of Levy proved very interesting. Although the index was not known to the author, complete data was given and so the index in different cases could be obtained. The unreliability of the index is also clearly demonstrated here.

1. Index in cases of otitis externa: 1-12, 1-6, 1-10.
2. Index in cases of otitis media acuta with healing with antrotomy: 1-9, 1-7, 1-9, 1-5, 1-3, 1-5, 1-7, 1-5, 1-10, 1-4, 1-4.
3. Index in cases of otitis media purulenta at time of antrotomy: 1-12, 1-3 and on discharge, 1-10; 1-6 and on discharge, 1-10; 1-15 and on discharge, 1-16; 1-6 and on discharge, 1-9.
4. Index in a case of meningitis with 90 per cent polymorphonuclear neutrophiles and a temperature of 39°C, showed only an index of 1-4.
5. Index in a case of sinus thrombosis, 1-3.

SUMMARY.

1. The index exists in normal blood counts even when there is no blood shifting to the left.
2. The value of the index is in direct proportion to the duration of the illness. A high index, especially in cases of streptococcus mucosus, may be present with extensive disease of the mastoid.
3. The index, *per se*, is unreliable in making a diagnosis between mastoiditis purulenta, presinus abscess and sinus thrombosis.
4. The index as determining the degree of blood shifting to the left has little value in determining the time of operative interference.

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- 225 W. 86th Street.

REPORT OF A CASE OF LARYNGEAL TUBERCULOSIS.

DR. LOUIS DAILY, Houston, Texas.

The importance of an early diagnosis in laryngeal tuberculosis can hardly be overestimated, because of the fact that it responds to treatment. We have been taught that laryngeal tuberculosis is a late and usually fatal complication of pulmonary tuberculosis; this is an erroneous idea, which should be corrected. According to St. Clair Thomson, the larynx is involved in one-third of the cases of pulmonary tuberculosis. The diagnosis can and should be made before hoarseness or dysphagia develop, because at this stage treatment is most effective. One of the early signs of laryngeal involvement is the pale anemic appearance of the mucous membrane; the favorite site of tubercular involvement is the interarytenoid fold, which should be carefully examined for infiltrations and granulations; next in order of their usual involvement are the vocal cords, the arytenoids and the epiglottis; when you have difficulty in swallowing, the epiglottis is usually involved.

The College of Surgeons in Detroit, in 1927, and the Southern Medical Association in Memphis, in 1927, both had symposia on laryngeal tuberculosis. The prevalent opinion was that even in moderately advanced cases, prognosis is unfavorable. Therefore I consider this case of moderately advanced laryngeal tuberculosis, which responded promptly to treatment, of sufficient interest to report.

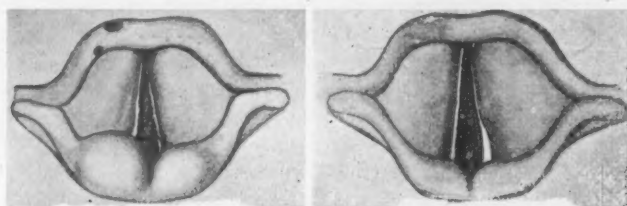
Mr. A. G., age 45 years, 5 feet 5 inches tall, weight 145 pounds, apparently in good health. He brought his sick wife to Dr. M. L. Graves, and because he had been hoarse for a month he decided that he would consult Dr. Graves about himself. The man stated that had his wife not been ill, he would not have thought about seeing a physician about himself. Dr. Graves made a diagnosis of pulmonary tuberculosis. On laryngeal examination his epiglottis was found thickened and turban-shaped; there was a large ulcer on the under-surface, near its edge, and a smaller ulcer lower down. Both arytenoids were infiltrated and swollen, the left twice as large as the right; a condition called pseudoedema of the arytenoids. Both vocal cords were ulcerated, the left cord showing more destruction than the right; the false cords were infiltrated, the left one being so large that it obscured the true cord in ordinary respiration.

Nov. 7, 1927, under direct suspension, with the old model Seifert laryngoscope, which exerts no pressure upon the posterior wall of the pharynx, the larynx was cauterized with the electrocautery; the

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vocal cords were seared, the left arytenoid was cauterized extensively, the right deeply punctured several times, the ulcers on the epiglottis could not be reached in this position, because the epiglottis was heavy and hung down. One month later these ulcers were cauterized by the indirect method. The patient has not used his voice for eight weeks following the first cauterization, communicating his desires through pad and pencil. The after-treatment consisted of intralaryngeal injections of soothing oils. Within the following three months he gained 20 pounds. The arytenoid infiltration disappeared, and they seem normal. The ulcers on the cords are healed; the edges of the cords are uneven; the epiglottis shows two scars, healed ulcer. His voice is very slightly husky.

The following is the report of Dr. M. L. Graves on the physical findings before and after treatment: Mr. H. G. examined by me, Oct. 26, 1927, for hoarseness and dyspnea; rare cough and mucopurulent expectoration. Temperature 99°; pulse 92; respirations 20.



Before cauterization.

After cauterization.

Physical Examination: Impaired resonance right apex, anteriorly and posteriorly. Fine, moist rales right apex posteriorly. Whispering voice sounds right apex above and just below clavicle. No rales or cavity signs left apex or upper lobe. Impaired resonance left apex anteriorly and posteriorly. Diminished vesicular breathing.

Provisional Diagnosis: Pulmonary tuberculosis with cavity formation in right apex. Pulmonary tuberculosis left upper lobe and apex. Tubercular laryngitis. Sent to Dr. Louis Daily for special treatment of larynx.

Sputum Examination: Ten c.c. mucus with little pus. Few acid fast bacilli found.

Following operation was re-examined on Jan. 27, 1928. No symptoms; gained in weight, 20 pounds. Physical examination revealed no rales; diminished respiratory activity in both apices, particularly the left; impaired resonance both apices; temperature 98°, pulse 81, respirations 21. Patient feels well. Improvement marked. Discharged Jan. 27, 1928.

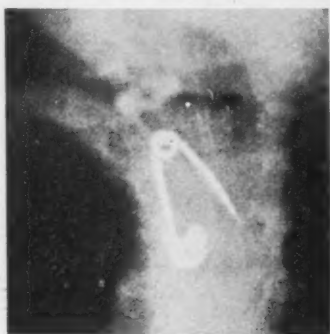
1117 Medical Arts Building.

REPORT OF A CASE OF FOREIGN BODY IN THE THE ESOPHAGUS OF AN INFANT.

DR. HIRAM RANDALL, Binghamton, N. Y.

The reports of Drs. Iglaur and Orton in the November, 1927, issue of *THE LARYNGOSCOPE* regarding open safety pins in the esophagus prompts me to report the following:

A baby, age 10 months, was seen to put a small safety pin in its mouth while being attended by its mother. The next day the family physician was consulted. As the baby presented no signs or symp-



toms, it was decided to wait a few days. Six days later, as the safety pin had not passed by bowel, he referred the child for an X-ray, which showed the pin point downward in the esophagus.

Removal was accomplished in a few seconds, as no problem presented.

The practical point of interest is that in spite of the point being downward the child continued to take food without regurgitation or showing any evidence of discomfort or difficulty, proving the possibility of esophageal foreign bodies, especially in infants without signs or symptoms.

No history of vomiting was elicited, although it may have been in the stomach for a time.

81 Main Street.

A NEW SELF-RETAINING PALATE RETRACTOR.

DR. FRANZ HASSLINGER, Vienna.

The principle of posterior rhinoscopy depends upon the fact that one throws the light upwards into the nasopharynx through the aperture between the posterior pharyngeal wall and the soft palate. If we look in the direction of the rays thrown upon our mirror, we can observe the structures of the postnasal cavity.

In some cases posterior rhinoscopy is very easily accomplished; in other cases it is very difficult, or not at all possible. These difficulties occur in patients with increased irritability or when the entrance to the postnasal space is very narrow, or where both of these conditions exist.

If it were only for this increased irritability one could overcome this difficulty easily by the application of cocain-adrenalin to the mucous membrane.

However, it is not so simple when the entrance to the postnasal space is very narrow. In this case the examination is either imperfect or impossible. If we encounter this difficulty, the reason for failure may be that the patient cannot relax the muscles of the palate. When this difficulty arises we direct the patient to inhale through the nose or to pronounce a French nasal en. This procedure tends to relax the soft palate.

In a considerable number of patients we are still not able to examine the nasopharynx because of an unfavorable arrangement of the soft palate. This is the case when the distance between the posterior wall of the pharynx and soft palate is a small one or when the soft palate lies in apposition to the posterior wall. Czermak, the inventor of posterior rhinoscopy, attempted to get better exposure of the nasopharynx by means of a hook. Turck made for the same purpose a loop by means of which he engaged the uvula and the assistant pulled it forward. Voltolini recognized the necessity of improvement in palate retractors and devised a special retractor, which is named after him. Voltolini says: "Whoever maintains that it is possible to see the nasopharynx without a uvula retractor either doesn't understand this examination or else he says so, because he was never able to see any better into this cavity." Ziem also is of the opinion that the palate retractor should be used generally for all cases. Although

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Voltolini and Ziem overestimated the value of a palate retractor and although it is possible to get along in the majority of cases without using it, its advantages are not to be underestimated.

In the first place, it should be mentioned that through the wider entrance to the postnasal space, such as is obtained by using a palate retractor, we are thus able to use a larger mirror (laryngeal mirror). This circumstance has the consequence that one may get a more intensive illumination and get a better view of the anatomical relations, which is a great advantage in the examination of pathological processes, such as tumors, ulcerations, etc.

Another advantage which is present when the opening to the postnasal space is enlarged is that the light from the mirror may be



Fig. 1.

Fig. 1. The usual method and findings of posterior rhinoscopy. Note the ulceration and the upper margin of the tumor (a) cannot be seen.



Fig. 2.

Fig. 2. Posterior rhinoscopy with the author's self-retaining retractor. Note tumor (a), ulceration and area beyond easily seen.

reflected upward at angles which are different from those angles possible in the case of a narrow opening and ordinary small mirror.

In Fig. 1, where the soft palate is in its usual position, the rays of light must fall upon the posterior wall in an almost tangential manner. While in Fig. 2 the soft palate being pulled forward, the rays of light can be reflected on the posterior wall more directly, and as a result any pathology in this hidden region can be easily seen.

On the other hand, if the light is directed anteriorly by movement of the mirror, it is possible to see the choanae, the entrance to the Eustachian tubes and posterior tips of the turbinates far better than by the usual method of posterior rhinoscopy.

The difficulty with ordinary palate retractors is that either the patient himself or an assistant must hold it. To obviate this difficulty

various men tried to invent a self-retaining retractor (Schmidt, Krause, Weagly, Cleveland, Hopmann, Peyer-Porcher, Sohen).

The principle of all self-retaining palate retractors consists in a palate hook, in addition to this a plate which rests on the anterior part of the upper jaw beneath the nose. In the ordinary form of palate retractors there is always a certain difficulty in inserting this instrument. The uvula hook, which is in a fixed relation to the shaft, inclines forward. For that reason when this instrument is used it is necessary to manipulate the same by various maneuvers, to bring the hook of the instrument behind the soft palate, which is almost in apposition to the pharyngeal wall.



Fig. 3.

Fig. 3. Method of introduction as described.



Fig. 4.

Fig. 4. Palate retractor in position.

To obviate this difficulty I have devised an instrument in which the palate hook articulates with the shaft.

The introduction of the instrument is made in the following manner. Anesthesia of the nasopharynx is accomplished by the application of a solution of cocain, 10 per cent, with an applicator, through the mouth, the base of the tongue being held down by use of a tongue depressor. The forefinger is inserted into the ring (See Fig. 3[a]); the thumb rests upon the plate (b). When one draws the ring backward the sleeve (c) follows. Finally, by the pressure of the thumb on the plate (b) the uvula hook (d) is tilted backwards by means of the rod (e). This facilitates the insertion of the palate retractor into the narrow aperture of the postnasal space. Now, the pressure of the thumb on the plate is gently released. In the following order the hook behind the soft palate comes automatically into its proper position (See Fig. 4) and then the rest assumes its

position on the anterior part of upper maxilla. Now, the instrument becomes self-retaining and the examining physician has both hands at liberty (See Fig. 4).

The instrument has been used on a great number of cases and can be recommended upon the basis of the author's experience.

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NEW YORK BRONCHOSCOPIC CLUB.

Of interest to the profession in general, but of special interest to the Bronchoscopist, was a meeting which took place on Tuesday, Feb. 21, 1928, at the Columbia University Club.

Following the inaugural dinner, the aims of the new Bronchoscopic Club were explained, and plans for its complete organization were perfected by leading members of the profession throughout the metropolitan district.

The following elections took place:

President, Dr. Frank Richard Herriman.

Vice-President, Dr. Henry Hall Forbes.

Secretary and Treasurer, Dr. Westley Hunt.

The aims of the organization represent a distinct advance in the field of Bronchoscopy. The active membership includes the combination of the internist, the thoracic surgeon, the Roentgenologists, and the pathologists, as well as the peroral endoscopists, which comprises a unit all working in close co-operation, thus affording the specialist an interesting opportunity of comparing and checking up on the data presented, as well as assuring to the patient the best possible diagnostic and therapeutic results.

Dr. Chevalier Jackson, of Philadelphia, Pennsylvania, was the guest of honor at the dinner. Dr. Jackson delivered an instructive address on the past, present and future of peroral endoscopy and traced the growth and development of this specialty from his advent in Philadelphia 41 years ago.

Dr. Jackson then spoke of the usual difficulties of indifference and antipathy which he encountered as a pioneer in the then new field of Bronchoscopy. He was required to finance out of his own pocket the cost of experimentation in this field. His indefatigable efforts, however, have been rewarded by world-wide recognition in medical circles, in proof of which hospital authorities in one institution appropriated, and spent, during

the year of 1927, the sum of \$67,000.00 in the purchase of instruments for this work, and 3,000 cases were treated in that year.

In looking ahead to the future, Dr. Jackson is doing very promising work with Asthma, Pneumonia and even Tuberculosis. In a stirring address, Dr. Jackson outlined the work in this field in Philadelphia, which exemplified the necessity in the metropolitan district of an efficient unit for the treatment of peroral endoscopic cases.

Dr. C. Calatayud, of the University of Madrid, recognized authority throughout Europe on Roentgenology, addressed the meeting and reviewed the work on the Continent. Dr. Calatayud voiced his appreciation of the recognition which he had received in our country.

Among those present were the following:

Dr. Henry Hall Forbes, Dr. Lewis Gregory Cole, Dr. Richard Frank Herriman, Dr. Charles Jack Hunt, Dr. Westley M. Hunt, Dr. John D Kernan, Dr. Robert L. Moorhead, Dr. Henry B. Orton, Dr. Walter E. Rahte, Dr. Francis Carter Wood, Dr. Maximilian A. Ramirez, Dr. Frederic T. Hume, Dr. Thomas Joseph Ryan, Dr. Chevalier Jackson, Dr. Antonio Valenti, Dr. J. A. Lopez, Dr. C. Calatayud, Dr. Thomas J. Harris and Dr. Juan F. de Figuera, of Cuba.

During the business meeting which followed the address of the guest, Dr. Jackson, Dr. Hubert Arrowsmith, of Brooklyn, Dr. Harris B. Mosher, of Boston, Mass., were elected as honorary members of the club.

At this meeting, Dr. Cole exhibited some X-ray pictures of several cases of massive collapse of a lung which demonstrated the importance of co-operation between different specialties which composed the organization of the club.

COMMUNICATION.

Editor and Publisher, THE LARYNGOSCOPE,

The article of Dr. Albert P. Tibbets, which appeared in the December issue of *THE LARYNGOSCOPE*, reporting five cases of Vincent's with tonsillar hemorrhage, prompts me to report the following case with symptoms similar to the cases reported by him, caused by the streptococcus hemolyticus with sloughing but without the hemorrhage.

While I have failed to look up the literature as to the frequency of local infections, streptococcus hemolyticus in the throat, but in speaking to men of experience I found that few have had any experience with this form of local infection, except a case or two had been seen in the army.

Patient, Mrs. R. M. W., age 43 years, was referred for tonsillectomy on Oct. 24, 1927.

Chief complaint: choking sensation, slight sore throat, a feeling of lassitude, gastric disturbances, general aches and pains.

Husband died two months after marriage; would not divulge cause; never had a child. Her sister said whenever she gets a cut it immediately becomes infected. Tonsils on examination were moderately hypertrophied, crypts contained a moderate amount of discharge on pressure. Larynx revealed all structures normal except epiglottis appeared somewhat injected. Nose negative. Coagulation time, five minutes.

Tonsillectomy was performed on Oct. 25 under local anesthesia with scissor and snare. A sponge covered with tannic and gallic acid in adrenalin was sutured into each fossa with one stitch through anterior and posterior pillars and the patient left the office after a four-hour rest. On the next day sutures and sponges were removed, but there appeared quite a slough. Where the sutures were inserted there appeared quite a large round opening, which was visible in the anterior pillars only. Patient complained of pain on the right side, though the left looked the worse. I then believed, owing to the fact that I this day used a No. 4 braided silk instead of plain black cotton, which is my usual suture material, that this braided silk was too heavy and caused the defect in the pillar. But I had used the same in another patient on the same day, and my result was not the same.

Patient returned to my office the next day and at the point where the sutures entered the pillars continued to slough, and divided itself into two parts; there also appeared a slough around the soft palate;

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the hard palate was red and had some small brownish areas; pharynx was also red.

A smear was taken with the object in view of finding Vincent's, but the following report disproved my contention.

Nov. 3, 1927, report of Dr. E. H. Nidish: Smear and culture from throat shows a predominance of streptococci, some pneumococci, a few staphylococci, and a few mouth bacilli. Negative for diphtheria.

Subculture on a blood agar plate shows an almost pure culture streptococcus hemolyticus. There are numerous small colonies with zones of hemolysis around them.

Nov. 7, 1927, culture and smear from throat. Smear shows a moderate number of pus cells. There are some diplococci and some Gram positive cocci in chains. No fusiform bacilli and no spirals present. Culture shows a predominance of pneumococci and some hemolytic streptococci. This case continued to slough, particularly in the anterior pillars, though the posterior were involved and the upper angle of the fossae around the soft palate.

When, on Nov. 26, the patient began to feel improved, and smear and culture report on Nov. 28 were as follows:

Smear from throat shows an occasional Gram positive coccus. There are no fusiform bacilli, spirilli, diphtheria or streptococci present. Culture shows a predominance of staphylococcus albus and a few pneumococci. There are no streptococci present.

The treatment of this case was a puzzling one. I consulted Dr. S. H. De Coste, who informed me that he had seen such a case in the army and he advised the use of 20 per cent silver nitrate. This I tried, but the condition continued to progress. I then raised the silver nitrate to 50 per cent and was still not satisfied that I was arresting the condition. In speaking to Dr. Mark J. Gottlieb, he thought that a 10 per cent solution of gentian violet may work out fairly well, which I did. My patient did not show much improvement. Believing that there still is a Vincent's, I used some salvarsan locally. And some days I combined the three. Which one of these remedies helped the condition I am unaware, as none at one time showed any marked improvement. It is quite possible that the process arrested itself.

Question: Shall we take cultures for streptococcus infections prior to operations? Second: Others having similar experiences, what form of treatment have they pursued.

I submit this for your kind consideration as a case report as it may be of interest to the profession.

DR. J. E. BRAUNSTEIN.

767 Eastern Parkway, Brooklyn.

NASHVILLE ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

May 21, 1928.

External Operation on Frontal Sinus. Dr. M. M. Cullom.

Mr. F., age 22 years, consulted me on April 18, 1928, for empyema of the right frontal sinus. He gave the following history:

Some time last summer he sought relief from empyema of frontal sinus and had an external operation performed in September in California. This was kept opened externally by means of a drainage tube for something like a month and daily efforts were made to cleanse the wound with disinfectant. But following the external operation, at different times since he has had nine intranasal operations, but satisfactory intranasal drainage could not be established. When I saw him the empyema was pointing externally at the eyebrow. I passed a probe into what appeared to be the frontal sinus but it was followed by no drainage. X-ray picture disclosed a large frontal sinus which extended over to the external angle and high up on the forehead, as you can see from the picture, which was very cloudy.

Patient complained of a great deal of pain. X-ray picture disclosed ethmoid cells which had not been opened. Believing that ethmoid cells should be taken care of under local, on April 19 I did as thorough an exenteration as possible and made as large an opening as I could into the frontal sinus, but was unable to establish drainage. Patient was running a temperature between 100° and 103° and was complaining of severe pain and had all the appearance of a very sick man. He had declined an external operation when I suggested it, but under the stress of pain and illness, he consented to have a radical external operation done.

I operated upon him April 21. The operation was rendered quite difficult by the great swelling of the tissues and the cicatricial tissue resulting from the former operations. The hemorrhage was very profuse and was controlled with considerable difficulty. The technique of Lynch was followed. There was no elevation of the periosteum above the line of incision. The incision was through the eyebrow and well down the side of the nose and the periosteum was elevated below the line. The entire floor of the frontal sinus was exposed. An opening was made into the sinus by means of mallet and gouge, which was filled with pus and granulation. The entire floor of the frontal sinus was removed, all the granulation, together with the diseased membrane of the frontal sinus was curetted out.

The floor was followed down and the entire paper plate was removed, together with some ethmoid cells which could not be removed intranasally. A large opening was thus secured down into the nose and a 1/2-inch drainage tube was introduced from the wound into the nose. The wound was closed externally with skin clips. The drainage tube was left in position eight days. The discharge of pus ceased at once and there has been no recurrence. The patient is now, to all appearances, well.

DISCUSSION.

DR. HILLIARD WOOD said that he thought that the result is beautiful. This is another illustration of what the Lynch radical frontal sinus will do. Evidently this case had had much surgery and was evidently far from well, and now since Dr. Cullom has operated he has good result. The inside of the nose looks fine. The Lynch radical frontal sinus operation is a wonderful operation and I believe that it has come to stay.

DR. FRED HASTY said that the result was beautiful. About 90 per cent of the men who attempt radical surgery are in no position to do so. Drainage is very important. I think Lynch has done a great deal by giving us this operation. His operation has meant more to me than any other operation in many years.

DR. E. L. ROBERTS said that he agreed with Dr. Hasty in that 90 per cent of the men doing radical surgery had no business doing it, but he was at a loss to know how to correct this.

DR. M. M. CULLOM, in closing, said that he appreciated the discussion very much. Despite medical progress it has taken about 100 years to learn that the way to drain a frontal sinus is through the nose. Lynch laid down the steps of his technic clearly and the reasons for complaint against his operation is not any fault of his, but the operators. They fail to follow his plan step by step. I find the operation to be most satisfactory, the patients have had recurrence, no crusts in the nose, and the results have been good.

DR. HILLIARD WOOD said that one of the patients on whom he did a Lynch radical had had six or eight operations for the empyema of the frontal sinus. He advised and did a Lynch radical and when she returned several months later he failed to guess which side the operation was done on; by looking at the face, there wasn't that much scar.

Herschel Ezell, Sec'y-Treas.

June 18, 1928.

Report of Bronchoscopic and Esophagosopic Work. Dr. Hilliard Wood and Dr. W. W. Wilkerson, Jr.

The number of patients treated in this series is 51, 47 of whom, that is all but four, gave a reasonably definite history of having swallowed a foreign body. The other four were cases of exploratory bronchoscopy for diagnostic purposes.

Each of the 47 cases, or 92 per cent of the whole, gave a more or less definite history of having swallowed a foreign body, and in 43 the foreign body was found and removed.

Five of these patients were less than 1 year old; 12 of them were between 1 and 2 years old; seven of them were between 2 and 3 years old; eight were from 3 to 4 years old; one was 4 years old; one was 5 years old; seven were from 6 to 10 years old; three from 10 to 15 years old; one between 15 and 20 years old; one between 30 and 40; three from 40 to 50; and two from 50 to 60 years old.

It will thus be seen that 34, or 66% per cent, or exactly two-thirds of the entire number, were within the first five years of life, and that 32, or 63.7 per cent, occurred during the first three years of life. This will show the great preponderance of foreign bodies in young children. The youngest patient was 6½ months old and the oldest patient was 54 years old.

Studying the ages further, it is seen that 27, or about 53 per cent of the whole, occurred during the three years between 1 and 4 years of age, that is the age when children begin to crawl and walk about the room and pick up small objects and, following the instinct of childhood, put them in their mouths. The greatest number of accidents occurring in a single year were between 1 and 2 years old when 12, or 23.5 per cent, of the foreign bodies were swallowed.

There were 23 females and 28 males. Two of these patients were colored and 49 were white. It could hardly be supposed that white children swallow in proportion 24 times as many foreign bodies as colored children. The discrepancy is probably due to the better attention given by the parents and family to the white children than to the colored and, therefore, the symptoms arising from swallowing a foreign body are given more attention by the white than by the colored patient.

The time the foreign body was retained varied from 1 hour to 5 months. The average time for the 43 foreign bodies was 12 days. However, if we omit four cases in which the foreign body was retained from 1 to 5 months, we find that for the remaining cases the average time the foreign body was retained was about 2½ days. This latter figure shows the average time for 39 cases, or 94 per cent of the whole. This is about the average time needed for the parents to realize their danger, to consult a physician, and to make the neces-

sary examinations and preparations for the removal. I may say in this connection that one of these foreign bodies, a silver quarter, was retained in the trachea between 4 and 5 months, and that another foreign body, a nickel, was retained in the esophagus between 5 and 6 months.

The location of the foreign bodies were: two in the lower pharynx; four in the larynx; 10 in the trachea; seven in the right bronchus; two in the left bronchus; 17 in the esophagus, and three in the stomach. Omitting the two found in the lower pharynx, we see that in 23 cases, or practically 53 per cent of the whole, the foreign body entered the air passages, including in the air passages the larynx, and tracheobronchial tree. Twenty, or practically 44 per cent, entered the alimentary tract and were found in the esophagus, or in the stomach. Of these 20, 17 remained in the esophagus, and three had passed into the stomach.

Of the 51 operations included in this report, 21 were done under ether and 29 without anesthetic. Speaking in a general way, and without following hard and fast rules, I may say that the younger the patient the less anesthesia was used. Ether was used more especially in the older patients, as we felt that it was less dangerous than in the younger children. Cocain should never be applied to the throat of a child, especially a very young child, which has labored breathing. Ether is more necessary in searching for a foreign body whose location is known. In certain cases, as in the removal of sharp or jagged objects, from the esophagus, which might easily perforate, it is generally advisable to use ether.

Six tracheotomies were done. Two of these were done because of the diminutive size of the larynx, as it was impossible to introduce a 5 m.m. bronchoscope through which we could operate; and three were done for cyanosis occurring during the bronchoscopy; one was done two days after the removal of the foreign body by peroral bronchoscopy on account of the accumulation of secretion in the trachea which the child could not cough up. The above experience shows that in about 6 per cent of bronchoscopies in children tracheotomy was done. This should be kept in mind in operating, and the tracheotomy equipment should always be kept in readiness. An emergency tracheotomy done for the relief of cyanosis can be done without general anesthesia. If any anesthetic is used, novocain hypodermically is sufficient. I may also add that tracheotomy wounds should never be sutured, but should be left open to heal by granulation. To close them is to take the risk of emphysema, due to the leakage of air into the cellular tissue, which is frequently alarming and sometimes fatal.

The foreign bodies removed were: five pennies, five nickels, four grains of corn, four safety pins, four straight pins, three beans, three watermelon seed, two metal discs, two chestnuts, two silver quarters, one metal cup, one piece of tobacco, one marble, one peanut, one piece of roast beef, one silver half dollar, one chicken bone, one pebble and one cocklebur.

Six of these patients were over 30 years old and in five cases the foreign body was taken with food, such as bones, large pieces of meat, etc., and in one it was tobacco in the trachea. The foreign bodies swallowed by the small children were usually parts of toys, pins, small coins, beans, grains of corn, etc.; that is, such small objects as they would pick up in their play, or about the premises, and put them in their mouths, where they have no business. In no case was there a child with a foreign body taken in with its proper food.

There were eight cases in which the foreign bodies were not found, or where the bronchoscopy or esophagoscopy was done for diagnostic purposes.

One was a stricture of the esophagus due to swallowing concentrated lye and is unusual, in that the patient was a man age 39 years, who swallowed the lye with suicidal intent. The immediate local reaction was so violent that an emergency tracheotomy and gastrostomy were done to give him air and food. The local reaction subsided and the tracheotomy tube was removed and the opening closed. He came to us two months later with a stricture of the esophagus. The stricture has been treated by gradual dilatation until now a No. 33 French bougie can be passed and the patient is eating regular food, including vegetables and meats.

Another patient was a child age 7½ months, with a history of increasing dyspnea for four months. The case had been gone over thoroughly by a number of physicians and several X-ray plates had been made without determining the cause of the dyspnea. Exploratory bronchoscopy was done as a last resort, and was negative as to findings. The patient reacted nicely from the examination, but died 30 hours later. No autopsy could be obtained.

Another case was a child age 10 months, who had been suffering with labored breathing for four weeks and had had a tracheotomy before we saw him. Exploratory bronchoscopy and esophagoscopy were negative. There was difficult decannulation. This was handled by Dr. F. Manning Brown, of Hopkinsville, Ky.

He gave the patient bromides for three days, followed by a hypodermic of morphin, making him too sleepy to get scared when the tube was removed. He removed the tube and, as the patient reacted from the morphin, he continued to breathe normally. Some were bronchoscopies and esophagoscopies done in searching for foreign bodies supposed to be present, but were not found, and the patients subsequently recovered.

An interesting case was that of a 17½-months-old baby with an open safety pin in the esophagus, the open end being up. Various kinds of forceps were used in an effort to close and remove the pin, but without success. The pin was grasped with forceps and passed into the stomach, where it was rotated and then drawn back up through the esophagus and out. I have since devised a pair of safety pin forceps which I think will facilitate carrying these open safety pins into the stomach, rotating them, and bringing them back up.

A very remarkable case was that of a 13-months-old child who swallowed a silver quarter, which passed into the trachea and remained there for four months. The child died and the quarter was removed postmortem.

Another interesting case was that of a child age 8 years, who was brought to me with the history of having swallowed concentrated lye when she was age 2 years, followed by stricture of the esophagus. The stricture had been treated and apparently cured. Three days before coming to me the child had swallowed chewing gum and had since been unable to swallow anything more than fluids. Esophagoscopy led to the removal of the chewing gum and also a nickel. The nickel was not mentioned in the history and afterwards the mother stated that the child swallowed the nickel five months before, but that they had paid no attention to it.

An Unusual Case of Meningitis. Dr. W. W. Wilkerson, Jr.

J. W. W., white, male, age 58 years, came to me suffering with severe pain in the region of his right ear. History: The patient had been in good health with no recent attack of colds or influenza. Two days previously he had been sucking water up his nose, as was his habit, and felt as if he got some in his right ear. The following day he had severe pain in the right ear and this gradually became more severe.

Examination: The left drum was slightly retracted, but otherwise normal. The right drum was red and bulging. No pus was seen in the nares, and transillumination of the sinuses was negative. The tonsils were small and buried. No pus was seen in the nasopharynx. Under gas anesthesia a myringotomy of the right ear was performed, and pus was found to be present under pressure. After the patient's recovery from the anesthesia there was no abatement of the pain which had then been present on the right side of his head for the past 36 hours. Nor did he get any relief until I gave him a quarter-grain of morphin. This quieted him and he slept practically all day. Excepting for the severe pain in his head, he presented no unusual picture. His pupils and reflexes were normal. I advised him to see his family physician when he reached home, as I felt that he had some general disturbance along with the ear infection.

I did not see the patient until eight days later, as he lived out of town. His wife called me practically every day and seemed to think that he was progressing nicely. Eight days after opening the ear, I was called to see this man and found him in a comatose condition; reflexes normal, pupils normal, but with some rigidity of the neck. His daughter stated that the day before he was

feeling very well and rode about 36 miles in an automobile. On his return home he collapsed and had gradually gotten worse. Dr. E. B. Cayce and Dr. A. L. Harris were called in consultation and we all agreed that the condition was one of meningitis. Neither Dr. Cayce nor myself felt that the patient was suffering from mastoiditis. The patient was sent to the hospital, where the following data was obtained.

On entering the hospital the patient was unconscious and extremely restless; with temperature 105° , respirations irregular, but not of Cheyne-Stokes type, and pulse rate 125. Left facial paralysis was noted to be present.

On examination of the fundi the right disc showed a definite blur of the margins, but the veins appeared to be fairly normal in size. The left disc showed a slight blurring of the margins. On examination of the chest the heart was found to be negative except for tachycardia, and flatness or dullness was present over the base of the left lung; the abdomen was negative; reflexes were active, Babinski and Kernig signs were positive, and the neck was stiff. A spinal puncture was made, the fluid was peagreen in color and came out under pressure. The pressure was 35 c.m., rising at 40 c.m. pressure over the jugulars, 15 c.c. of fluid was obtained and it then ceased to flow. A smear of the spinal fluid showed a cell count of 1,850 per c.m., and Gram positive streptococci in short chains. A culture of the discharge from the external auditory canal showed staphylococci aureus, while a smear from the external auditory canal definitely revealed streptococci in short chains. Blood culture was positive for hemolytic streptococci. The blood count for R. B. C. was 3,970,000; the W. B. C. was 24,750; the Hb. 65 per cent. They were unable to obtain a specimen of urine. The blood pressure was 160/75 from the time the patient was admitted to the hospital until his death. His temperature varied from 104° to 107° at his death. His respirations varied from 26 to 60 at his death, and his pulse reached 155. A suboccipital puncture was made for relief of pressure, but as little pressure was found, it was not repeated. This quieted him.

The patient died exactly nine days following the myringotomy of his ear.

There is one other feature of this case to be considered. There was a marked scarring at the inner canthus of the left eye, from which pus exuded. Upon inquiry in regard to this, the patient stated that he had been operated on 18 times in the past two years for the removal of the lacrimal sac. It is possible, but hardly probable, that this infection came from the infected lacrimal sac, and it is also possible that this condition was a chronic ethmoiditis rather than an infection of the sac.

Summary of the finding: The patient had acute otitis media purulent, of the right ear, meningitis, pneumonia at the base of the left lung and chronic dacryocystitis.

DISCUSSION.

DR. W. G. KENNON said that he thought that the acute ear was the cause of the meningitis rather than the ethmoiditis.

DR. FRED HASTY said that he thought that the patient just carried some germ right on up in the nose with the salt water.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION OF OTOTOLOGY.

Regular Meeting, March 9, 1928.

A New Method of Determining Unilateral Deafness and Malingering. Dr. John Guttman.

(To appear in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. T. J. HARRIS: I am greatly appreciative of Dr. Guttman's courtesy in giving me an opportunity of saying a few words about this ingenious apparatus which he has described. May I say that I greatly regret that some of the audience have not had an opportunity of witnessing this demonstration, and I hope they will make an effort to see it—the only way I was able to realize its value.

I heartily agree with Dr. Guttman's contention that the usual methods of examining for unilateral deafness, especially in malingering, are faulty. He has rightly emphasized the inadequacy of the wetted finger; most of us have discarded that a long time ago, and no one could have used the Barany noise apparatus without recognizing that it is by no means a satisfactory instrument. Just as he stated, the hearing in the poor ear is dulled by the noise in the normal ear; and, what is equally true, the transferred sensation by bone conduction makes the findings faulty. This, of course, applies to the non-malingering; when it comes to the malingerer, it is more faulty still. In the army we used to regard it as exceedingly difficult to detect definitely any question of malingering for unilateral deafness.

Dr. Guttman spoke of the use of tuning forks and the employment of the stethoscope—that by pressure you could cut off the sound. We know that the sound can be conducted outside of the rubber tube, so that it is a useless method. He also spoke of the importance of recognizing unilateral deafness. I am not a physiologist, and cannot properly criticize the apparatus he has presented. He demonstrated it to me a few days ago, and I was much impressed with its ingeniousness. It was only another evidence of the cleverness and scientific skill of Dr. Guttman. The physiological laws which he has enunciated tonight are used by him to show beyond any question that wherever there is simulated deafness in one ear it can be detected. When he presented the apparatus the other afternoon, I wondered whether it could be utilized as a practical working instrument in our offices; it certainly could be used in war times or in the army.

I wish to take this opportunity to pay a heartfelt tribute to Dr. Guttman for the work he has done in this and other lines. I feel that he has not had sufficient recognition for it. His audiometer was the first one on the market, long before the Western Electric demonstrating machine, and he has not had credit for it. It has been pointed out that the large apparatus of the Western Electric Company used for school purposes was something that he had suggested a considerable time prior to its being taken up by the Western Electric. Such fine, quiet work, done year in and year out by one of our own number, deserves the recognition of our Section as perhaps he has not had.

Primary Jugular Bulb Thrombosis. Dr. Jacob L. Maybaum.

(To appear in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. OTTENBERG: Dr. Dwyer has just asked me a question which I would like to pass on to Dr. Maybaum—how he would prove that a particular case of sinus thrombosis is a primary bulb thrombosis. I am not an otologist and I cannot answer him, but the conception that I have gained from Dr. Maybaum and Dr. Friesner is that an otitis without mastoiditis, apparently skipping over

to the sinus, can be assumed to be a primary bulb thrombosis. I brought this question up for the reason that the blood culture studies which I have made possibly throw some light on the subject.

I spoke here last year about the use of the differential jugular blood cultures in sinus thrombosis. This procedure, as you may remember, consists of making blood cultures from the two internal jugular veins and carefully counting the number of colonies per cubic centimeter of blood from each vein. If one finds a marked difference between the two counts, one is safe in assuming that a sinus thrombosis exists. Before I had tried this method I assumed that the larger number of bacteria would always be on the diseased side. To my great astonishment, in the first case I found the larger number on the normal side. This case on operation turned out to be one diagnosed by Dr. Friesner as a primary bulb thrombosis, and I have had several such cases since.

A brief consideration of the anatomy suggests one of several possible explanations for this. There is a very free communication via the transverse sinuses and the cavernous sinuses, between the lateral sinuses of the two sides. When an occluding thrombosis forms in the jugular bulb, the circulation from that side practically ceases and most of the blood from the infected area drains out through the jugular vein of the opposite side. An alternative explanation which was suggested by an observation of Dr. Libman many years ago, is that one end of a thrombus may remain infected. The blood, as you know, is strongly bactericidal and tends to kill off the bacteria in direct contact with it. In my very limited experience of primary bulb thrombosis, the larger number of bacteria is usually on the normal side, and this would suggest that the infection which commenced in the jugular bulb was traveling upward, the lower end of the thrombosis being already sterilized at the time of the blood culture.

On the other hand, in one case of mural thrombosis of the lateral sinus, I found the larger number of bacteria on the same side as the disease. As it is usually not possible before operation to distinguish between mural and occlusive thrombosis, I do not believe that the differential blood culture method will be of value in deciding on which side a thrombosis exists but only in determining conclusively that there is a thrombosis in one of the sinuses.

One of the questions that have interested me particularly in the subject of sinus thrombosis is the significance of bacteremia. Perhaps some of you can suggest why the symptoms continue.

Another question I should like to hear discussed is that of blood transfusion in sinus thrombosis. I agree with Dr. Maybaum that transfusion is not a specific for sepsis but is a valuable supportive agent when needed; one must not expect it of itself to cure sepsis, nevertheless when it is indicated it is a very valuable therapeutic measure.

DR. J. G. DWYER: I have not much to say except that Dr. Ottenberg and I are old friends, and I asked him how he did differentiate primary bulb thrombosis from thrombosis in the lateral sinus, especially where you get no jugular bleeding that is not different from the ordinary sinus thrombosis. Second, even on the physical field of the jugular bulb, primary bulb thrombosis must be very rare. I have probably 15 to 18 jugular thromboses a year; I have already had five since Jan. 1. I have never seen a case of primary bulb thrombosis.

About the blood culture, of course Dr. Ottenberg is more of a physiologist than I, but we followed out experimental blood culture on guinea pigs, tying off the jugular vein and infecting the blood. I believe we can get loads of these records, that are caused by bacteria but are not affected at the time, due possibly to physical reasons; and certainly in some cases that I quoted—one where the sinus was injured at operation—in these cases the clot, first of all, is probably sterile; then, if the clot is removed the clot remains sterile and the symptoms of temperature are probably a protein reaction, as a person with a broken limb has a little temperature; but if the cause is not removed we get an infected clot and sooner or later coagulation necrosis, etc. We all know that blood culture work is unsatisfactory. I have followed dozens of these cases; one was a lesson to me, which we threshed out when Dr. Tobey was here. The patient was a girl sent from St. Luke's Hospital with a type of low grade ear that Dr. Maybaum spoke of, and she ran a temperature up as high as 106° or 107° at 11 o'clock at night, and had a temperature of 97° in the morning. In the morning her blood culture was invariably negative. We

made 11 cultures and had seven positive ones out of the lot. I do not understand from the physical standpoint the finding of papillitis on a 4 or 5 diopter choked disc with sinus thrombosis. We went over this for years. They notified me a half-hour after a tremendous chill. There was doubt at the time of operation whether or not she had a clot; she had a chill and temperature; I had a good look at her eye grounds, and she had a number of very congested veins, but I have never seen in any of these sinus thrombosis cases any fundus changes.

This question that has been spoken of—about bleeding from both ends, blood cultures sterile, possibly one with a little gray spot on the sinus; that is simply a clot, etc., due to the anatomy of the mastoid; we had a case two weeks ago; the child had a very rough mastoid, and when the doctor went in he found the mastoid pretty well broken down, and the whole way down there were masses of cells with clotted granulations, and with hemolytic streptococcus; and 18 hours after a tremendous chill and the temperature up to 106° one intermission then, and on Monday I was again called in. We went in at 11 o'clock at night and cleaned out a few more cells, and there was a little diseased area; so we must keep an open mind about primary bulb thrombosis. I don't yet see how you make a differential diagnosis by blocking off the torcular end; that is why we operate, and whether or not we get bleeding from the other end it does not prove that we have a primary bulb thrombosis.

DR. MAYBAUM, closing discussion: Dr. Dwyer's question regarding the diagnosis of primary bulb thrombosis is a very appropriate one. I do not agree with the statement that the condition is extremely rare; I would rather say that it is comparatively rare. In a very active service at Mt. Sinai Hospital we have had only 10 cases—one of them doubtful—in a period of seven years. During an eight-year service at the Manhattan Hospital previous to this period, I had not seen a single case. This latter experience coincides with Dr. Dwyer's. I ascribe this to the fact that these cases come first under observation of the pediatrician, with negligible ear history and findings, and only later are they seen by the otologist.

The first thing that strikes one in these cases is the absence of all signs or symptoms referable to the mastoid and, furthermore, as definitely proved by our operative findings in our cases, the mastoid antrum and mastoid proper contain neither granulations or pus; so I consider a requisite for such a diagnosis is the absence of signs and findings of mastoid involvement. The finding of pus in such mastoids would justify one in questioning the diagnosis of primary bulb thrombosis. Invariably we found absence of mastoid cells; in one instance there was a normal small-celled mastoid. I would not make such a diagnosis without due thought and consideration. The diagnosis can be made in presence of a sepsis unaccounted for by any other demonstrable lesion, by a history of an acute otitis media, with or without suppuration, and a positive blood culture.

Now as to the question of fundus changes: Dr. Dwyer said that he had never seen fundus changes in cases of sinus thrombosis. Our experience has been quite to the contrary. Five of our cases reported this evening showed fundus changes from early optic neuritis to papilloedema. The latter is an unusual finding. A number of these cases showed increasing fundus changes for a time after operation. From 15 per cent to 20 per cent of all of our cases of sinus show some fundus change. These figures conform to those reported by other otologists. Our eye findings are not reported unless confirmed by an ophthalmologist.

Dr. Ottenberg referred to an interesting fact regarding the possibility of a sterile end of the thrombus in the bulb, whereas suppurative changes in the remainder of the thrombus may occur. We have noted in some of the cases that the sigmoid sinus contained either a suppurative thrombus or actual pus, whereas a firm thrombus was present in the bulb. Progressive changes in the thrombus may take place from the bulb backward.

Tuberculosis of the Middle Ear from the Clinical Standpoint. Dr. Gerard H. Cox.

(To appear in a subsequent issue of THE LARYNGSCOPE.)

Tuberculosis of the Middle Ear from the Pathologist's Standpoint. Dr. James G. Dwyer.

(To appear in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. JOSEPHSON: During the past month-and-a-half I was called in consultation to see the case of a child who had been running a temperature for about a week. It was age 5 years and was fairly well nourished. The diagnosis at first was influenza. I examined the ear, and it had been incised by another otologist, but at no time had there been any discharge. A close examination revealed on the membrane anteriorly and at the malleus distinct tubercles. I asked the doctor if he was positive there was nothing found in the lungs; he said he was quite positive, but I asked him to go over the lungs again, which he did, and again said there was nothing. I then tried it myself and in the left scapular region I found a definite area of altered respiratory breathing, so we came to the belief that there was some change in the lung. That cleared up the next day, and the child had had no trouble since. The second case I saw a year ago—now a year old—with tuberculosis present, where there was a sequestration of the tympanic segment.

I would like to know from Dr. Cox whether he feels quite certain that some of these cases may not be secondary infections.

DR. J. J. GURTOV: I should like to know whether they found any case without demonstrable parts of the organism.

DR. MAYBAUM: The papers of Dr. Dwyer and Dr. Cox forcibly bring to our attention the fact that in all probability we are negligent in our failure to recognize tuberculous affections of the middle ear and mastoid. Most of us are fully aware of the textbook picture of the early stages of this condition. There are, however, cases of chronic middle ear suppuration which clinically cannot be designated tuberculosis and for which a careful bacteriological examination is necessary in order to make such a diagnosis. I should like to ask what types of cases of middle ear suppuration were selected for this investigation. Did the writers of the paper subject all cases of chronic middle ear suppuration to bacteriological examination?

A number of years ago while in Vienna, I recall that cases of tuberculous middle ear and mastoid were seen and easily recognized clinically. These were usually advanced cases with or without absence of vestibular response, some had facial paralysis and most of these had a foul smelling middle ear discharge, with the middle ear and external auditory canal full of granulomata. Such cases are seldom seen in our clinics.

DR. DWYER: As to whether all were investigated, all were secondary. We have never seen primary tuberculosis of the ear that we know of. Even the children were secondary, so that we have not seen primary tuberculosis of the ear at all.

We made our first report some 10 or 12 years ago. We took the run of every chronic case that we got hold of, to find out how many were tubercular and how many not. This last series that Dr. Cox reports were my own. A woman came in, and on getting her history, we found it typical; never had any ear trouble; woke up one morning with a discharging ear; no pain, but the ear started to pour out pus; this continued for a month, and when we looked in there was extensive destruction of the drum, etc. Asking her history, it was found that she had had a tuberculous kidney removed some years before.

I have been studying this for 12 years, and the second set were cases picked out clinically from the histories. In once case there was extensive destruction of the drum, with sloughing degeneration, etc.

In other cases we found the remains of the malleus embedded in flabby granulations, etc. In still other cases, such as the man I watched, I saw the tuberculosis develop in the other ear. He was sent to me from Saranac; his lungs were negative but his sputum was positive. Their diagnosis at Saranac was that he was expectorating from a cold cavity in the lung, etc. I made a diagnosis of tuberculosis and got a culture, but there are loads of cases that are tubercular that we have no lead on at all.

DR. COX: I think Dr. Dwyer can answer most of the questions better than I.

SECTION OF LARYNGOLOGY AND RHINOLOGY.

*Regular Meeting, March 28, 1928.***Case of Chronic Laryngitis. Dr. A. S. Willson.**

This case was selected because it is one of a group of cases of contrasting type, but it has some interesting features of its own.

The patient was admitted to the clinic, complaining chiefly of dyspnea and hoarseness, complete loss of voice for six months; no pain, no cough; she had large, diseased tonsils and the vocal cords looked like polyps. The condition was so extensive that the cords overlapped; there was considerable mucopus in the trachea. The case was turned over to me after being in the clinic for two months. I broncoscoped her four times and found mucopus, etc.

The Wassermann and urine examinations were negative; X-ray of chest showed a few calcified nodules in hilus; X-ray examination of the sinuses showed involvement of the ethmoids, etc.

I did not know what to do, but as she had pus in the bronchotracheal tree, I tried that first. We went down as far as could be reached on both sides and she was considerably relieved. The tonsils were removed in July; in August, both cords were cauterized; they were so soft that I thought that removing the growths with forceps would do damage to the cords.

She has been doing very well since, though she is still troubled somewhat with hoarseness.

The point of interest to me in this case was the value of the cautery. I had not much to go on and did not know what to do with those cords when I first saw them. She feels that she is completely relieved. I have not seen her since last August.

Syphilis of Larynx. Dr. S. A. Knopf.

This woman, age 35 years, was married twice but has never conceived in 16 years of cohabitation. Her menstrual cycle has been regular. She has never suffered any other illness except severe headaches, which for the past ten years have caused her to seek relief; on one occasion at the Neurological Institute. There, both blood and spinal Wassermann have been taken, each proving negative. These headaches continued with frequent recurrences until treatment was instituted for her present condition, with practically complete relief.

Her present illness dates back to about three months ago, when she contracted a sore throat. This persisted in spite of ordinary local treatment by a throat specialist, so that within a week swallowing became quite painful and progressively increased to such an extent that, because of the dysphagia, she had lost 10 pounds. During this time she had no temperature, no cough, no hoarseness, raised no sputum and had no sweat; does not look sick.

She appeared for treatment at the clinic in the Manhattan Eye, Ear and Throat Hospital on March 5, 1928, with the above history.

Examination of her nose, sinuses, mouth and faucial region revealed nothing relevant, but her epiglottis presented a swollen, diffusely indurated, dusky red appearance at its tip and laryngeal region, although slightly paler and somewhat edematous towards the base. There was a small erosion, about 2 m.m. diameter, on the left side, fairly regular and moderately deep. The larynx proper was obscured by this swelling, and remained so until a few days ago, but no pathology could be observed in that region.

On March 7, both Wassermann and Kahn tests were 4X. The chest X-ray revealed nothing of importance. No sputum could be raised for examination. X-ray of the larynx showed a large swelling of the epiglottis and arytenoid and several calcified areas in the cricoid.

To substantiate the diagnosis of syphilis, a specimen of the epiglottis was removed for biopsy, which revealed in its submucosa dense stroma profusely infiltrated with mononuclear cells, in areas quite an accumulation of large mononuclear cells, with some giant cell formation, and some blood vessels showing marked endarteritis to the extent of thrombus formation, so that a diagnosis of chronic syphilis inflammatory tissue was reported.

Salvarsan treatment was immediately instituted, with the result that the dysphagia disappeared entirely within a few days, has lost her headaches, has

gained weight, and feels better than she has in many years. My opinion is that the pain was due to a perichondritis.

Tuberculosis of the Larynx. Dr. David H. Jones.

In our presentation of clinical cases tonight we have endeavored to show cases representing the more common conditions met with, in the larynx, and the following cases of tuberculosis of the larynx show the effect of silence and cautery treatment and will also give a summary of the main symptoms met with in this condition.

W. K., age 41 years, family history bad, tubercular. Saw him at the hospital March 9, 1927, with following history of hoarseness for past three months: cough, night sweats, loss of weight, and reason for coming to the hospital was for pain in throat, especially in eating and drinking.

On examination, found marked edema of both arytenoids, with considerable infiltration and ulceration of epiglottis, turban-shape, but cords were not involved. Complete physical and X-ray examination of chest showed involvement of both apices, especially left, with a positive sputum.

Wassermann examination, negative.

His home surroundings not being satisfactory, advised him to go to Loomis Sanitarium on April 4, 1927, where he received rest, graded exercise and sun-lamp treatment; also urged silence treatment.

Saw him again in July and used cautery on epiglottis, patient was still very hoarse, and advised him to return to sanitarium, which he did, and since then he has observed silence.

He returned home Dec. 22, 1927, and have given him six cautery treatments to the epiglottis, and for the past two weeks have applied 20 per cent mercurochrome.

Present condition: Slight ulceration of free edge of epiglottis, with some scar formation, arytenoids nearly normal in appearance, slight thickening of cords. Lungs: Both physical and X-ray examination show no active process, no cough or expectoration. Patient has gained 31 pounds, and has been on silence treatment nine months.

Mr. R., age 51 years. Trouble began winter of 1925, with cough, expectoration, loss of weight, night sweats; and in summer of 1926 noticed slight huskiness, which increased to severe hoarseness, which was diagnosed as chronic laryngitis. Saw this patient in December, 1926, with marked involvement of epiglottis induration and infiltration, with beginning ulceration, both arytenoids were so edematous and swollen, making it impossible to see the cords.

Complete physical, chest and X-ray examinations of chest confirmed diagnosis of tuberculosis.

Have used cautery on epiglottis and arytenoids 16 times and for past two weeks used 20 per cent mercurochrome.

Now X-ray and physical examination of chest shows no active process.

Local examination: Epiglottis, slight involvement, some granulations and scar formation, edema in arytenoids much less, cords can be seen. No cough expectoration, gained 24 pounds, and has observed silence 14 months.

The main feature in these cases is the strict observance of silence treatment, one for nine months and the other for 14 months, and in order to make a differential diagnosis, have outlined in the following some of the persistent symptoms of tuberculosis of the larynx.

Voice: Weak, hollow, painful.

Hoarseness: Slight, but persistent, for two or three weeks and discomfort on phonation. Although we may have invasion of larynx without slightest alteration of voice or any local symptoms, because disease is not situated in a part of the larynx where there is any impeding of the clear vibration of cords. 2.2 per cent in 2,541 cases (Dr. St. Clair Thomson).

Pain: Early, hyperesthetic disease.

Discomfort: Early cases have discomfort for liquids, later dysphagia. Tenderness over larynx.

Patient's appearance: Pale and anemic, increased pulse rate and rise in temperature, and loss of weight.

Complete physical and X-ray of chest (done very carefully).

Cough: Generally present, but in old latent cases not constant.

Pharynx: Pallor of the soft palate.

Local appearance: The visualization of life of tubercle first in interarytenoid and arytenoid regions as pale, smooth, bilateral edematous swellings, and in addition we have an inflammatory zone around the area. Mucous membrane pale, ulcerations pale, superficial inactive edges, tubercle nibbles. Attacks back of larynx. Presence of tuberculosis in the lung. Positive sputum.

Prognosis: Any patient with laryngeal involvement is immediately classed as a severe case and prognosis much worse.

Treatment: Silence, rest, cautery and mercurochrome.

Carcinoma Treated With Radium (Three Cases). Dr. G. Allen Robinson.

Carcinoma of the Tonsil: Fred L., age 53 years, was referred by Dr. Hubert, of Dr. McCullagh's Clinic, Jan. 9, 1928, for treatment of a squamous cell carcinoma of the left tonsil and left side of the palate. The mass had ulcerated and was approximately the size of a hen's egg. The patient had difficulty in breathing and swallowing. There were numerous hard lymph glands in the left side of the neck, which were considered malignant.

The insertion of 10 gold implants, 1 m.c. each, and external radium packs amounting to 11,000 m.g. hours, caused a disappearance of the primary growth in the tonsil and soft palate within six weeks. A marked retrogression in the metastatic nodes of the neck has also taken place. Scar tissue replaced the site of the tumor mass in the tonsil area.

Carcinoma of the Larynx: James Mc G., age 53 years, was referred by Dr. Munroe, of Dr. Harmon Smith's Clinic on Oct. 17, 1927, for radium treatment of extrinsic carcinoma of the larynx. The chief symptoms were hoarseness, which began one year before, difficulty in swallowing, loss of weight and sharp, shooting pains in the left ear during the past four months.

Examination revealed an ulcerated growth filling the left pyriform fossa and invading the left side of the epiglottis. There was a large, firm lymph node in the left side of the neck at the angle of the jaw. A section of the tumor tissue showed squamous cell carcinoma.

The treatment consisted of five external applications of radium at 3 c.m. distance, amounting to 15,000 m.g. hours, and 11 gold implants of radon, 1 m.c. each, inserted into the growth, amounting to 1,463 m.c. hours. The growth in the pyriform fossa has apparently disappeared; the patient has gained 13 pounds in weight and is able to swallow without difficulty. The voice is also much improved.

Carcinoma of Larynx Five Years After Radium Treatment: John S., age 74 years, was referred by Dr. Farr, of Dr. Harmon Smith's Clinic. The chief complaint was hoarseness of one year's duration, and later difficulty in breathing. A specimen taken in July, 1922, revealed a basal cell carcinoma of the larynx. Following the removal of this specimen, the patient was comfortable for a few months. Examination in February, 1923, showed a mass 2x1x1 c.m. involving the left vocal cord.

Three external radium treatments at 1 c.m. distance, amounting to 1,300 m.g. hours, were applied to the left side of the larynx. Three months after the first application of radium the growth had dissolved. In July, 1923, the cord appeared normal, and has remained so until the present date, March, 1923.

Squamous Cell Epithelioma of Larynx. Dr. John M. Loré.

Mr. H. H., age 47 years, has been hoarse for about 18 months. Prior to this, he states that his voice was not always clear. He has had a slight productive cough, but no dyspnea or dysphagia. Has had no loss of weight.

Work Up: Blood Wassermann, negative; X-ray of chest, negative; examination of chest, negative.

Biopsy on Nov. 29, 1927. The specimen consists of several irregular fragments of tissue, sections show a rather thick, hypoplastic, squamous epithelium. There is definite basement membrane present. The submucosa consists of rather dense fibrous tissue, with considerable inflammatory exudate, consisting of mononuclear cells. There is also a mass of cartilaginous tissue present.

Diagnosis: Chronic inflammatory tissue, the etiology of which is not evident. Following this report he had several injections of salvarsan, followed by a blood Wassermann, which was again negative.

Second biopsy on Dec. 13, 1927. The specimen consists of a small mass of soft tissue, 0.5 c.m. in diameter. Sections show a markedly abnormal, hyperplastic, stratified, squamous epithelial cells, with marked infiltrations of the stroma. Many of the cells are abnormally large and show abnormal mitotic nuclei. The adjacent stroma shows an unusual amount of mononuclear inflammatory reaction.

Diagnosis: Squamous celled epithelionia.

He is now on radium treatment and has shown improvement. The important point in this case is the necessity of repeated biopsy where indicated.

DISCUSSION.

DR. HARMON SMITH: It is very rarely that one has the opportunity to see such an unusual number of laryngeal cases, some of them with a well defined opportunity for diagnosis from the outset and others in which it was difficult, or impossible, to come to a definite diagnosis. It is also pleasing to note the remarkable results obtained by the aid of radium and X-rays.

In Dr. Knopf's luetic case, the pain was misleading, particularly as there were no other symptoms to indicate that it was of that nature. However, I have seen cases of most excruciating pain in the larynx due to perichondritis of the cartilages, which would suggest a tuberculous condition, but which were specific. These cases require considerable elucidation to reach a definite conclusion.

Dr. Jones' patients all had the symptoms of tuberculosis, with the hoarse, suppressed voice, and the chest symptoms which accompanied it to aid him in coming to his diagnosis. He has been particularly successful in the outcome of the two cases he has treated, both by the cautery and by the "masterful in-articulation", which is the most important thing in taking care of such cases.

Then we have Dr. Robinson's cases of unqualified cancer, determined by biopsy. In such cases I believe that if the growth is "intrinsic" we are not justified in employing radium; but that if extrinsic we are unjustified in limiting ourselves to surgery, and that in suitable cases we should implant radium seeds, which when employed in the last two years, I have seen produce some wonderful results.

Dr. Kennedy's patient undoubtedly had a mixed involvement. Possibly luetic and lupetic. The epiglottis unquestionably looks like lupus; while the tonsils look specific.

I did not examine Dr. Loré's patient, and therefore have nothing to offer in regard to it.

DR. IMPERATORI: All of these laryngeal cases are very interesting and the problem of their diagnosis very intriguing. Patients presenting symptoms such as these patients had must necessarily be properly studied before a diagnosis can be arrived at. In the Bronchoscopic Clinic at the Manhattan Eye, Ear and Throat Hospital, a regular routine of examination is gone through with in each patient. These patients are brought from the Nose and Throat Clinics and rarely are they properly investigated before reaching us. Regular informal conferences are held on each patient and finally with the Roentgenologist, Dr. Law, and the Internist, Dr. Lincoln.

Regarding the use of radium in carcinoma of the larynx, in my opinion the results obtained are very disappointing. It should be used only as a palliative measure in extrinsic growths. The cured 76-year-old patient, in my opinion, was not cured by the use of radium, but the biopsy probably removed the whole growth. It was a basal cell type of epithelioma.

Regarding Dr. Kennedy's case, our diagnosis was that it was probably 60 per cent lupoid and 40 per cent syphilitic.

In arriving at a diagnosis of carcinoma and attempting to differentiate, we try to get a fairly good history of the various symptoms from the laryngeal standpoint; then we have a thorough examination of the chest by an internist, and confirm that by a Roentgenogram. Frequently we have seen cases where the internist found nothing in the chest and something has been shown by the Roentgenograph. I also feel very strongly about this question of biopsies. I do not think any laryngeal growth should be operated upon by a laryngofissure or a laryngectomy without confirming the diagnosis by a biopsy.

DR. L. GLUSHAK: In tuberculosis of the larynx the voice is a very interesting and important feature. It depends upon the response of the vocal cords

to tone formation when there are infiltrations in the cords from granulations and ulcerations. The tone is modified sometimes to the extent of almost a whisper due to the impediment in three movements of the cord, as it is also obtained in chronic inflammatory conditions. In early cases of tuberculosis of the larynx we often observe a weak tone, which points to an asthenic condition of the cords, which apparently shows no gross lesion during laryngoscopic lateral limits. It seems as if this asthenic condition may possibly be the result of a toxic action of the early tuberculosis existing in the chest.

Cauterization of the tuberculosis of the larynx. Have produced excellent results by the method known as Tief Stich, or deep penetration, into the ulcer of granulation with a pointed cautery and removing it while still hot. I would like to ask the Doctor how he used a cauterization in his cases.

The case of Dr. Knopf was very interesting. Six salvarsan injections were given without any result. At first I was inclined to consider it tuberculosis of the larynx on account of the extensive edematous infiltration in the region of the arytenoids. Usually one sees the syphilitic or gummatous conditions mostly aggregated to one part of the larynx, but this wholesale infiltration of the larynx tempts one to label it rather tubercular. Of course, one must always remember the possibility of a mixture of the two.

DR. ROSS FAULKNER: I have seen most of this very remarkable group of cases before, and diagnosed some of them, in the very early days when the case of Dr. Knopf was diagnosed very differently, but I was glad to have the Wassermann test at the same time. I would like to mention one item that we often do not take into consideration—the general condition and appearance of the patient. We very rarely see a tuberculous patient that on a weekly chart would not show some temperature; if you put them on a chart for a week, you will see some slight rise of temperature and you will not likely get a pulse rate below 100. I have seen a great deal of tuberculosis, in fact I lived among them for three years, but it is very rare to see a patient with a tuberculous lesion anywhere that does not run a high pulse rate.

In our clinic of late we are doing a little more careful work. Under the supervision of Dr. Jones not much gets by us in the larynx. I think he is one of the best diagnosticians I have ever seen for the larynx. I would waive my diagnosis very often in his favor. The stimulation he has brought to our clinic in regard to the diagnosis of these laryngeal conditions is very remarkable.

I have heard the report from Dr. Robinson. I am always a little skeptical as to the value of radium, but he has the goods in these cases. I had one apparently inoperable extrinsic laryngeal carcinoma case. I suggested to Dr. Robinson that we open the larynx externally and fill the mass with radium, which we did. That patient is alive and well today, but I would warn everyone against repeating it. I have never seen such a sloughing mass from radium anywhere in the body; the whole mass, carcinoma and surrounding tissue, seemed to undergo a coagulation necrosis. After a period of about six weeks, I dug out the larynx; just a homogeneous mass. I could not distinguish the esophagus at all, just took out the mass and left the trachea at the bottom of the sloughing cavity. Apparently I did not get any of the wall of the esophagus. Finally, by doing quite a number of plastic operations, I got his pharynx closed; it was open so that you could almost put your fist through it. In the meantime he was draining into the trachea; we had to change the dressing very often; a great deal of pus was coughed up. Toward the end of six months he had a little more of the neck than I thought he would have and eventually he got well. Although he has to wear a tracheotomy tube, he does a good day's work; but I would not advise anyone to try that treatment.

DR. JONES, replying to Dr. Glushak's question: I used the deep method of cauterization.

Frontal Sinus Operation Under Local Anesthesia. Dr. Irving Wilson Voorhees.

I have been unable to locate this patient, although I have tried quite persistently to do so. The patient had had a great deal of sinus pain for several years and the X-ray picture showed involvement of the right frontal sinus and right ethmoid. I did an ethmoidectomy, under local anesthesia and probed the nasofrontal duct, but did not succeed in relieving his pain. It was quite

obvious that a frontal sinus operation was imperative, but the man had undergone removal of one kidney several years previously, and there was some doubt whether it was wise to administer a general anesthetic. He was therefore admitted to the Manhattan Hospital for observation and study of the blood chemistry, etc. We came to the conclusion that it was not advisable to administer ether and, as he was a very tractable patient, it seemed possible to do the operation under local anesthesia.

I had not looked up the literature on the subject, but since that time have been told that the older rhinologists did the operation repeatedly. Inasmuch as the intranasal work had already been done, it was necessary to do merely the frontal sinus. Accordingly, the entire operative area was infiltrated with novocain and the sphenopalatine ganglion was anesthetized after Sluder's method. There was very little bleeding and practically no pain at all. Some authorities have spoken of the bad effects of chiseling. I found it necessary merely to chisel a small opening in the usual area and from this was able to punch out as much of the anterior wall as was necessary without further use of the chisel. The sinus was filled with polypi. The entire sinus was scraped clean and the opening into the nose made as large as possible. Gauze packing was introduced and left for 24 hours and the wound was closed by subcutaneous suture. Recovery was uneventful and complete and the patient has been well, insofar as I know, for the last four years.

Closed Empyema of Anomalous Ethmoid Cell; Operation; Recovery. Dr. A. Lobell.

Mrs. E. S., age 33 years, was admitted to the Manhattan Eye, Ear and Throat Hospital, Oct. 12, 1927, on the service of Dr. John E. MacKenty, originally under the care of Dr. A. H. Wilson, and subsequently under the care of the writer.

In 1918, her left antrum became infected as a result of the extraction of some teeth. In 1918, a Caldwell-Luc operation was performed to check the process. Although the antrum suppuration ceased, she continued to catch colds frequently. She also suffered from paroxysms of severe headache radiating from before backward, accompanied by vomiting and dizziness. These attacks occurred three or four times a year and lasted for three to four days. She was treated for migraine.

Three weeks prior to admission she had the severest attack; it persisted despite the usual remedies for relief, and she came to the hospital for observation. She was extremely restless and cried hysterically; the pain radiated from the left frontoparietooccipital regions to the mastoids, the neck and shoulders. The pulse had a tendency to slowness, even when she was tossing about restlessly. The temperature ranged between 100° and 101° F. The respirations were normal.

Examination showed the mucosa of the left nasal fossa to be a little paler than the right; the left middle turbinate was larger; the mucosa was not definitely edematous until about a week after admission. There was no purulent material or crusts anteriorly or postnasally. The patient claimed that the left upper eyelid was swollen, but objectively there was no such thing. There was tenderness over the left supraorbital region and the antrum, but her very nervous state gave no weight to her statements. The general impression did not coincide with the meager findings.

With such severe headache one expected more physical evidence of pathology in the nose; furthermore, the tendency to a slow pulse and the vomiting aroused the suspicion that she might be suffering from some intracranial lesion concomitant with a chronic sinusitis. It was difficult to conceive that an involvement of some cell could be exclusively responsible for all the symptoms. Then, again, she had the typical facies and mannerism of an hysterical woman. Dr. Wilson therefore advised studying the case very thoroughly before any operation was contemplated.

Laboratory data: The white blood cells were 14,000; polymorphonuclears, 77 per cent. The urinalysis was negative. The blood, the cerebrospinal, the Wassermann and the Kahn tests were all reported negative by Dr. Eggston.

(To be continued.)

